



Installation and Operation Manual

PA110/220 High Power Audio Amplifiers



SM35

ISSUE 4.01

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**PA110/220 High Power Audio Amplifiers
SM35 Installation and Operation Manual**

Table of Contents

Section	Title	Page
1.	Description	
1.1	Introduction	1-1
1.2	Product Description	1-1
1.3	Design Features	1-1
1.4	Specifications	1-1
1.4.1	Electrical Specifications	1-1
1.4.2	Physical Specifications	1-2
1.4.3	Environmental Specifications	1-2
1.5	Unit Nomenclature	1-2
2.	Installation	
2.1	Introduction	2-1
2.2	Unpacking and Inspection	2-1
2.2.1	Warranty	2-1
2.3	Continued Airworthiness	2-1
2.4	Installation Procedures	2-1
2.4.1	Warnings	2-1
2.4.2	Cautions	2-2
2.4.3	Cabling and Wiring	2-2
2.4.4	External Switches	2-2
2.4.5	Post Installation Checks	2-2
2.5	Accessories Required But Not Supplied	2-3
2.5.1	PA110 Installation Kit (PA110-IKS)	2-3
2.5.2	PA220 Installation Kit (PA220-IKS)	2-3
2.6	Installation Drawings	2-4
3.	Operation	
3.1	Introduction	3-1
3.2	General Information	3-1



PA110/220 High Power Audio Amplifiers SM35 Installation and Operation Manual

Section 1 Description

1.1 Introduction

Information in this section consists of product description, design features and specifications for the PA110/220 High Power Audio Amplifiers. 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 PA110 and PA220 High Power Audio Amplifiers are remote mounted modular amplifiers capable of producing 110 W of output power, and can be used in conjunction with NAT's Loudhailer/Siren systems.

Lower power systems (30 W) are usually used for sling load control and local external paging in smaller airframes, or internal rear paging in larger airframes. Higher power systems (110 W and up) are used for law enforcement and long distance external paging applications. The PA110/220 can be chained into multiple installations, allowing up to half a kilowatt of audio to be controlled by a single panel mounted controller.

1.3 Design Features

Provision is made for external power switching to activate PA110 and PA220 High Power Audio Amplifiers for increased power output.

All external interconnects, switches and relay contacts are gold plated for maximum reliability. Switches and relays are sealed. G10-FR flame retardant circuit boards are postcoated for maximum moisture resistance and corrosion prevention. Relays are sealed, high vibration rated (50g shock) and dry nitrogen filled.

1.4 Specifications

1.4.1 Electrical Specifications

1.4.1.1 PA110

Power	+28 Vdc nominal at 5.5 A max; Idle current less than 0.1 A
Low Level Input	Impedance 600 Ω \pm 5%
High Level Input	Impedance 300 Ω \pm 5%
Output	100 W nominal @ 1 kHz into 10 Ω , Transformer coupled

1.4.1.2 PA220

Power	+28 Vdc nominal at 10 A max; Idle current less than 0.1 A
Low Level Input	Impedance 600 Ω \pm 5%
High Level Input	Impedance 300 Ω \pm 5%
Output	2 x 100 W nominal @ 1 kHz into 10 Ω , Transformer coupled



PA110/220 High Power Audio Amplifiers SM35 Installation and Operation Manual

1.4.2 Physical Specifications

Height	4.10" (104.1 mm)
Depth	6.32" (160.5 mm) excluding mating connector
Width	7.90" (200.7 mm)
Mounting	Bulkhead, using 4 x AN3 bolts
Weight:	
PA110	4.6 lbs (2.09 kg) excluding mating connector
PA220	7.75 lbs (3.52 kg) excluding mating connector

1.4.3 Environmental Specifications

Temperature	-45° to +50° C (Ambient)
Altitude	25,000 ft. Maximum

1.5 Unit Nomenclature

The following list indicates the models available at the date of publication of this document. Other models may be available.

Model	Description / Distinction
PA110-015	High and low level inputs Optional audio key input Remote power keying Power and level indicators Local level adjustment Used with AA21 and AA22 controllers.
PA220-010	High and low level inputs Optional audio key input Remote power keying Dual level indicators and level adjustment Dual 110 W outputs with individual control and fusing for full redundancy. Mechanically interchangeable with PA110-015 (different interconnect). Used with AA21 and AA22 controllers.

Section 1 ends



PA110/220 High Power Audio Amplifiers SM35 Installation and Operation Manual

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 PA110/220 High Power Audio Amplifiers.

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 NAT 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 NAT or its designated warranty repair center, or any labour to remove or re-install the defective unit in the aircraft. Contact NAT for any questions regarding this warranty, its applicability to your units and/or for return authorization. NAT 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 NAT DEALER.** Product for which a warranty card is not returned shall be warranted from date of manufacture.

2.3 Continued Airworthiness

Maintenance of the PA110/220 is 'on condition' only. Periodic maintenance of this product is not required.

2.4 Installation Procedures

2.4.1 Warnings

WARNING:

Never ground any output line from the unit or permanent damage may result. Use of a fully floating audio wattmeter or transformer coupled meter is recommended. Always check ADF and compass calibration after installing external speakers or 'PA' amplifiers. Significant single cycle errors may be caused by the concentration of steel and magnetic material. **Do not** bundle any lines from these units with transmitter coax lines. **Do not** bundle any lines from this unit with 400 Hz synchro wiring, or AC power lines.



PA110/220 High Power Audio Amplifiers SM35 Installation and Operation Manual

2.4.2 Cautions

CAUTION:

Use shielded cable exactly as shown and **ground as indicated**. All audio installations can be severely degraded by incorrect wiring and shielding. Unusual buzzes, hums or other background audio are symptomatic of multiple grounds, or noisy external systems such as blowers or pumps sharing wiring with the audio system. Never operate any of the PA amps below their rated impedance of 10 Ω , except as indicated for the PA110.

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 connector map in Section 2.6 as required.

Allow 3" from the end of the shielded wiring to the shield termination to allow the connector hood to be easily installed. Reference the interconnect drawing in Section 2.6 for shield termination details. Note that the hood is a "clamshell" hood, and is installed after the wiring is complete. Aircraft harnessing shall permit the unit to be removed from the panel for easy access.

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 22 AWG, except power and ground lines, which shall be a minimum of 16 AWG, and speaker wires which should be at least 18 AWG. Reference the Interconnect drawing for additional specifications. Check that the ground connection is clean and well secured, and that it shares no path with any electrically noisy aircraft accessories such as blowers, turn and bank instruments or similar loads. Power to this unit must be supplied from a separate circuit breaker or fuse (fast blow), and not attached to any other circuit breaker without additional protection. Verify that the selected circuit breaker size and wire gauge are adequate for the installation using the techniques specified in AC43.13-1B Change 1, Paragraphs 11-47 through 11-51 and 11-66 through 11-69.

2.4.4 External Switches

If the PA110 is driven directly from an AA90 controller via an amplifier, or if for any reason an AA21/22 is not used, then a remote power switch (to disable the PA amp) may be desired.

2.4.5 Post Installation Checks

2.4.5.1 Voltage/resistance checks

Do not attach the power amplifier until the following conditions are met.

PA110

Check the following:

- P101 pins <6>, <18> and <19> for +28 Vdc relative to ground.
- P101 pins <4>, <5> and <17> for continuity to ground (below 0.5 Ω).
- Speaker connections are correct for the speaker impedance, and are not shorted.



PA110/220 High Power Audio Amplifiers SM35 Installation and Operation Manual

PA220

Check the following:

- a) P101 pins <6>, <24> and <25> for +28 Vdc relative to ground.
- b) P101 pins <4>, <5> and <23> for continuity to ground (below 0.5 Ω).
- c) Speaker connections are correct for the speaker impedance, and are not shorted.

2.4.5.2 Power On checks

- a) Install the power amplifier and power up the aircraft's systems. Turn on all of the radios and other accessories required for this system. Check that the **PWR** 'on' LED on the PA110/220 illuminates when the power switch is up.
- b) Select the rest of the audio system as required to allow connection of the pilot's mic to the 'PA' and key the cyclic switch for transmit. Check for correct radio operation and note what volume settings will produce a suitable external paging level. Refer to the AA21 or AA22 Operator's Manual for more detailed instructions.

Note: A faint audio signal heard at the speaker (even when the system is not paging) is common due to the very high gain of this system and stray coupling in the wiring. It is not audible in flight.

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.

2.5 Accessories Required But Not Supplied

These units require installation kits to complete the installation.

2.5.1 PA110 Installation Kit (PA110-IKS)

Quantity	Description	NAT Part #
1	Connector, D-min 25 Socket Solder Cup	20-20-025
1*	Jack Screw Set	20-27-002
1*	Lock Clip set	20-27-004
1	25 Pin Connector Hood	20-29-026

* Use as required.

2.5.2 PA220 Installation Kit (PA220-IKS)

Quantity	Description	NAT Part #
1	Connector, D-min 37 Socket Solder Cup	20-20-037
1*	Jack Screw Set	20-27-002
1*	Lock Clip Set	20-27-004
1	37 Pin Connector Hood	20-29-038

* Use as required.



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SM35 Installation and Operation Manual**

2.6 Installation Drawings

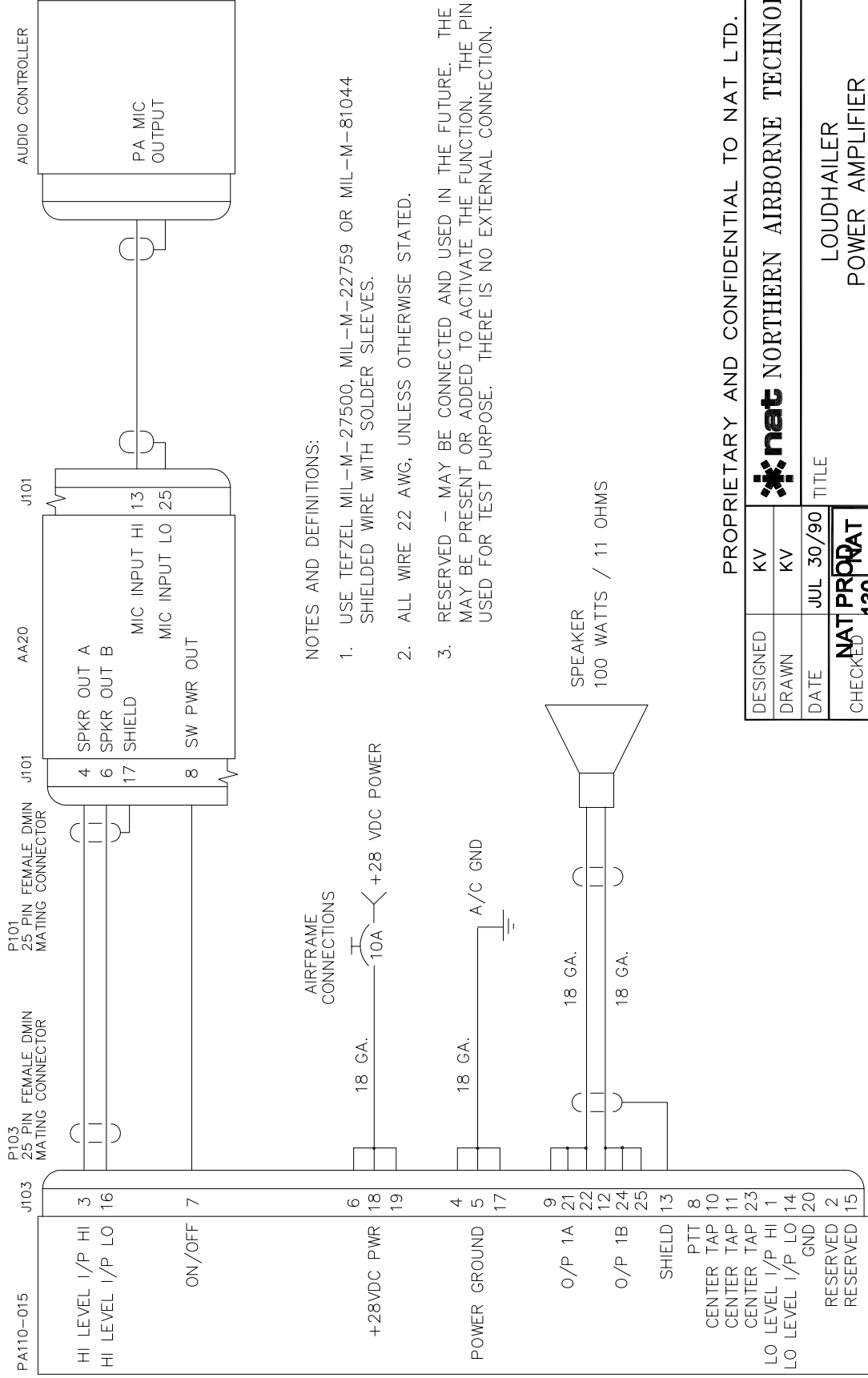
DRAWING	REV.	DESCRIPTION	TYPE
PA110-015			
PA110\015\403-0	1.01	Loudhailer Power Amplifier	Interconnect
PA110\015\403-1	1.01	Loudhailer Power Amplifier	Interconnect
PA110\015\405-0	1.02	Loudhailer Power Amplifier	Connector map
PA110\015\922-0	1.21	Loudhailer Power Amplifier	Mech Installation
PA220-010			
PA220\010\403-0	1.12	Loudhailer Power Amplifier	Interconnect
PA220\010\403-1	1.00	Loudhailer Power Amplifier	Interconnect
PA220\010\403-2	1.00	Loudhailer Power Amplifier	Interconnect
PA220\010\405-0	1.02	Loudhailer Power Amplifier	Connector map
PA220\010\922-0	1.21	Loudhailer Power Amplifier	Mech Installation

Section 2 ends following the above documents

REVOLUTIONS

REV	DESCRIPTION	DATE	BY
1.01	FORMAT CHANGES ONLY	MAR 26/98	TGM

PA110-015/AA20 EXTERNAL CONNECTIONS



NOTES AND DEFINITIONS:

1. USE TEFZEL MIL-M-27500, MIL-M-22759 OR MIL-M-81044 SHIELDED WIRE WITH SOLDER SLEEVES.
2. ALL WIRE 22 AWG, UNLESS OTHERWISE STATED.
3. RESERVED - MAY BE CONNECTED AND USED IN THE FUTURE. THE CIRCUITRY MAY BE PRESENT OR ADDED TO ACTIVATE THE FUNCTION. THE PIN MAY BE USED FOR TEST PURPOSE. THERE IS NO EXTERNAL CONNECTION.

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DESIGNED	KV	TITLE	
DRAWN	KV	LOUDHAILER POWER AMPLIFIER	
DATE	JUL 30/90	SIZE	A
CHECKED	NAT PRONAT 130 214	CAGE CODE	3AB01
APPROVED	NAT 107	PART NO.	PA110-015
FILE	403-0101.DWG	DWG. TYPE	INTERCONNECT
		REV.	1.01
		SHEET	1/1
		DWG. NO.	PA110\015\403-0

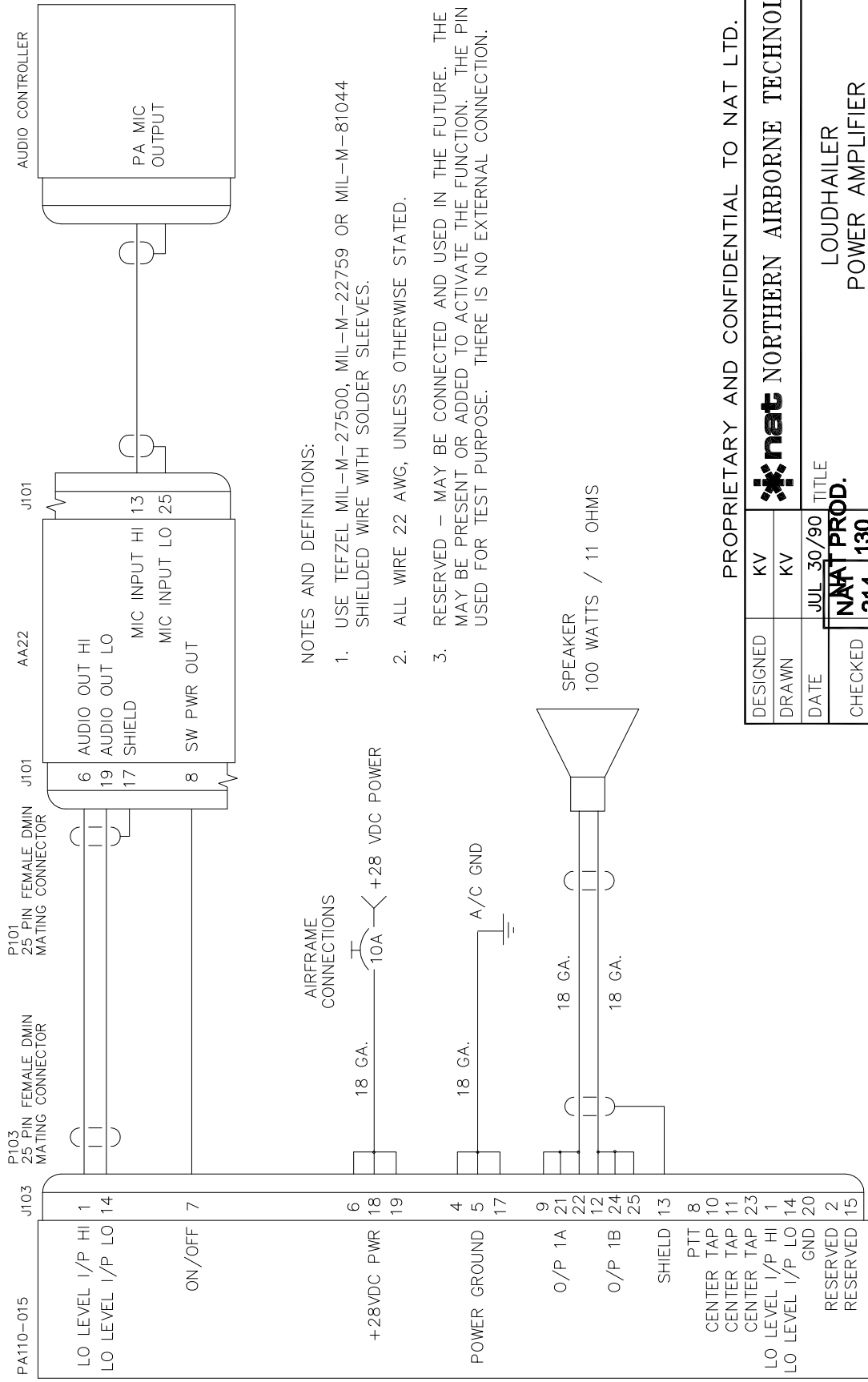


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REVISIONS

REV	DESCRIPTION	DATE	BY
1.01	FORMAT CHANGES ONLY	MAR 26/98	TGM

PA110-015/AA22 EXTERNAL CONNECTIONS

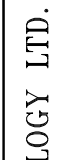


NOTES AND DEFINITIONS:

1. USE TEFZEL MIL-M-27500, MIL-M-22759 OR MIL-M-81044 SHIELDED WIRE WITH SOLDER SLEEVES.
2. ALL WIRE 22 AWG, UNLESS OTHERWISE STATED.
3. RESERVED - MAY BE CONNECTED AND USED IN THE FUTURE. THE CIRCUITRY MAY BE PRESENT OR ADDED TO ACTIVATE THE FUNCTION. THE PIN MAY BE USED FOR TEST PURPOSE. THERE IS NO EXTERNAL CONNECTION.

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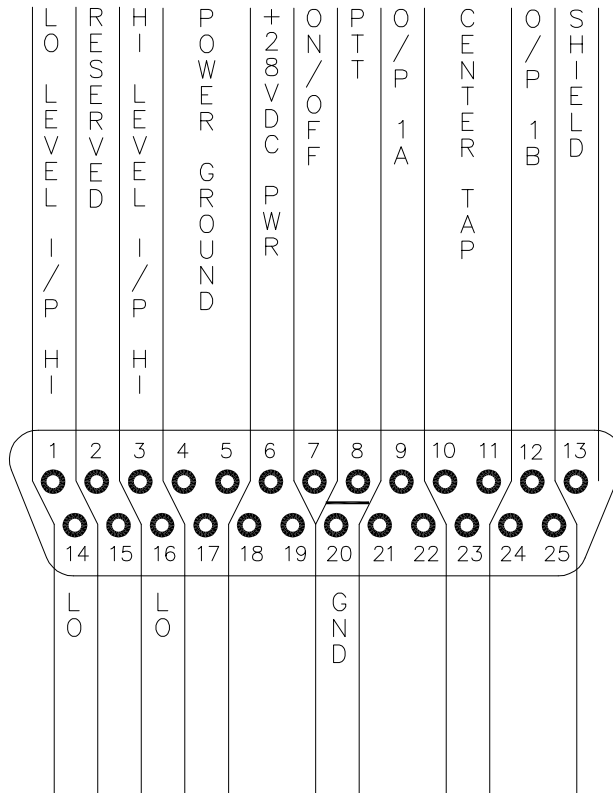
DESIGNED	KV	TITLE	
DRAWN	KV	LOUDHAILER POWER AMPLIFIER	
DATE	JUL 30/90	SIZE	A
CHECKED	NAT PROD. 214	CAGE CODE	3AB01
APPROVED	NAT 107	PART NO.	PA110-015
FILE	403-1101.DWG	DWG. TYPE	INTERCONNECT
		REV.	1.01
		SHEET	1/1
		DWG. NO.	PA110\015\403-1



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REVISIONS			
REV	DESCRIPTION	DATE	BY
1.01	FORMAT CHANGES ONLY	AUG 19/95	PL
1.02	FORMAT CHANGES ONLY	MAR 24/98	TGM

P101
FEMALE 25 PIN D-MIN
MATING CONNECTOR

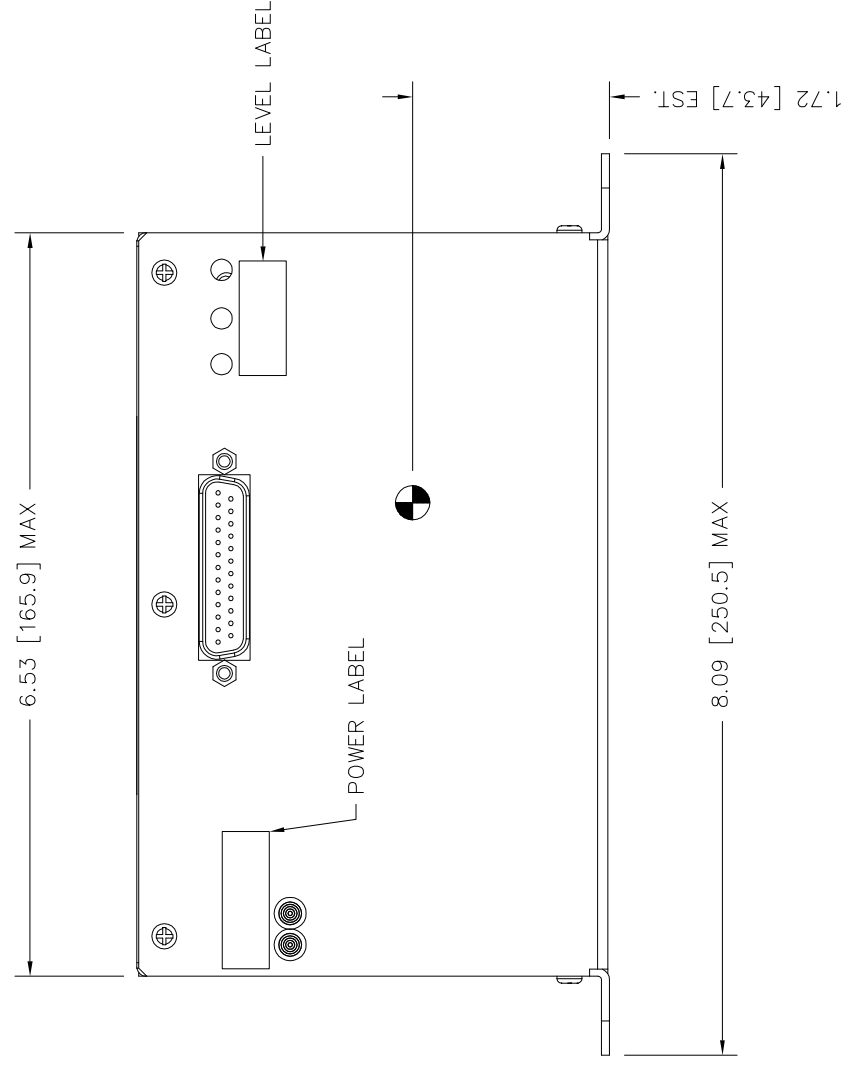
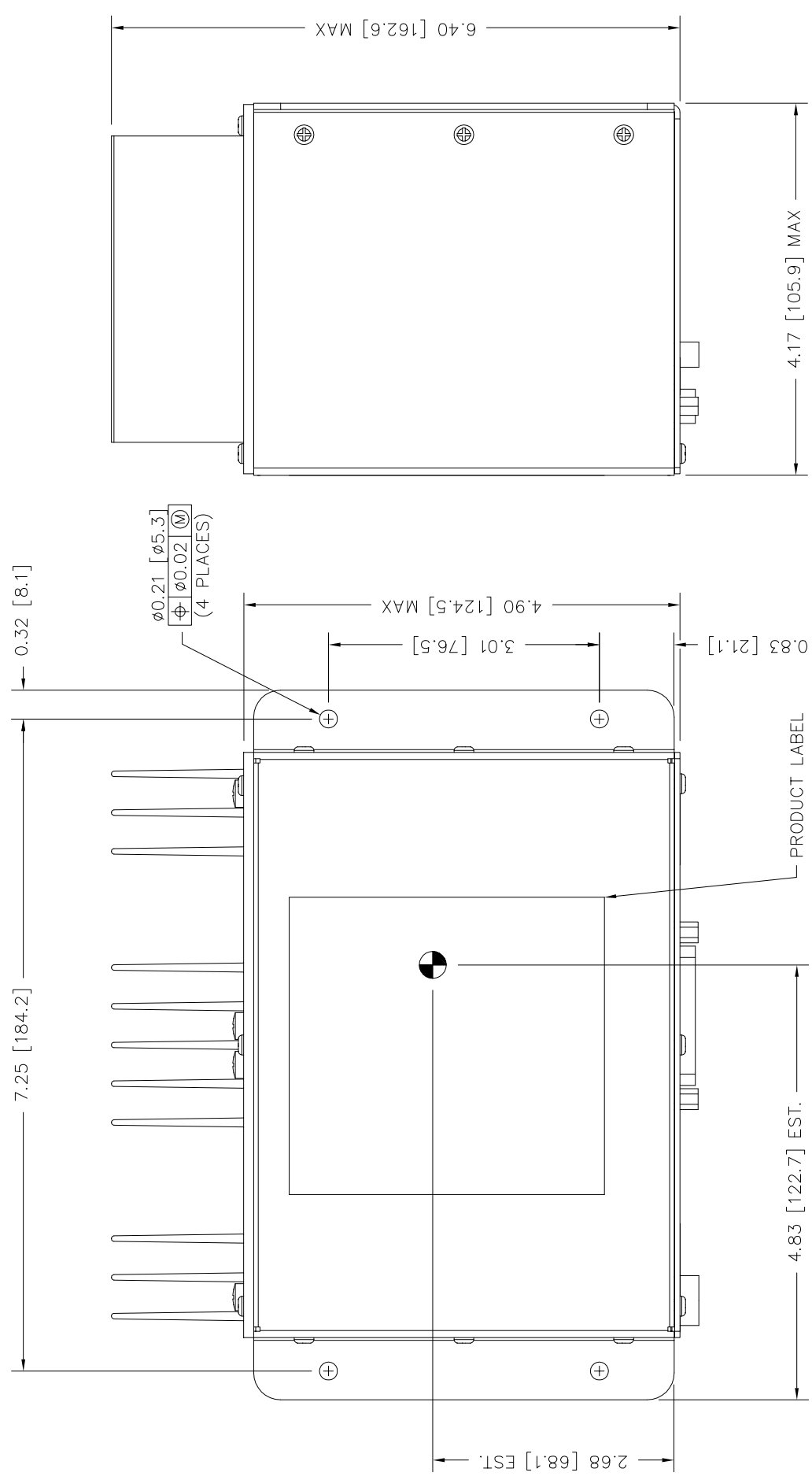


VIEW IS FROM REAR OF AIRFRAME CONNECTOR

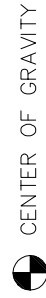
PROPRIETARY AND CONFIDENTIAL TO NAT LTD.

DESIGNED	KV	 NAT NORTHERN AIRBORNE TECHNOLOGY LTD.				
DRAWN	KV					
DATE	NOV 12/85	TITLE	LOUDHAILER POWER AMPLIFIER			
CHECKED	NAT PROD. 214 130					
APPROVED		SIZE	CAGE CODE	PART NO.	REV.	SHEET
FILE	405-0102.DWG	A	3AB01	PA110-015	1.02	1/1
DWG. TYPE		CONNECTOR MAP		DWG. NO. PA110\015\405-0		

REVISIONS			
REV	DESCRIPTION	DATE	BY
1.10	REDESIGN, ADJUSTMENTS AND CONNECTORS MOVED.	NOV 24/94	TGM
1.11	MOUNTING HOLES MOVED.	OCT 27/95	TGM
1.12	C OF G AND WEIGHT ADDED, FORMAT CHANGES.	APR 3/98	TGM
1.20	ECR #1708 - LABEL UPDATED, FORMAT CHANGES.	JAN 23/04	TAT
1.21	DOCCR01066 - DIM CORRECTIONS, FORMAT CHANGES.	APR 12/06	MWS



NOTES:
 1. DIMENSIONING AND TOLERANCING
 IN ACCORDANCE WITH ASME Y14.5M-1994

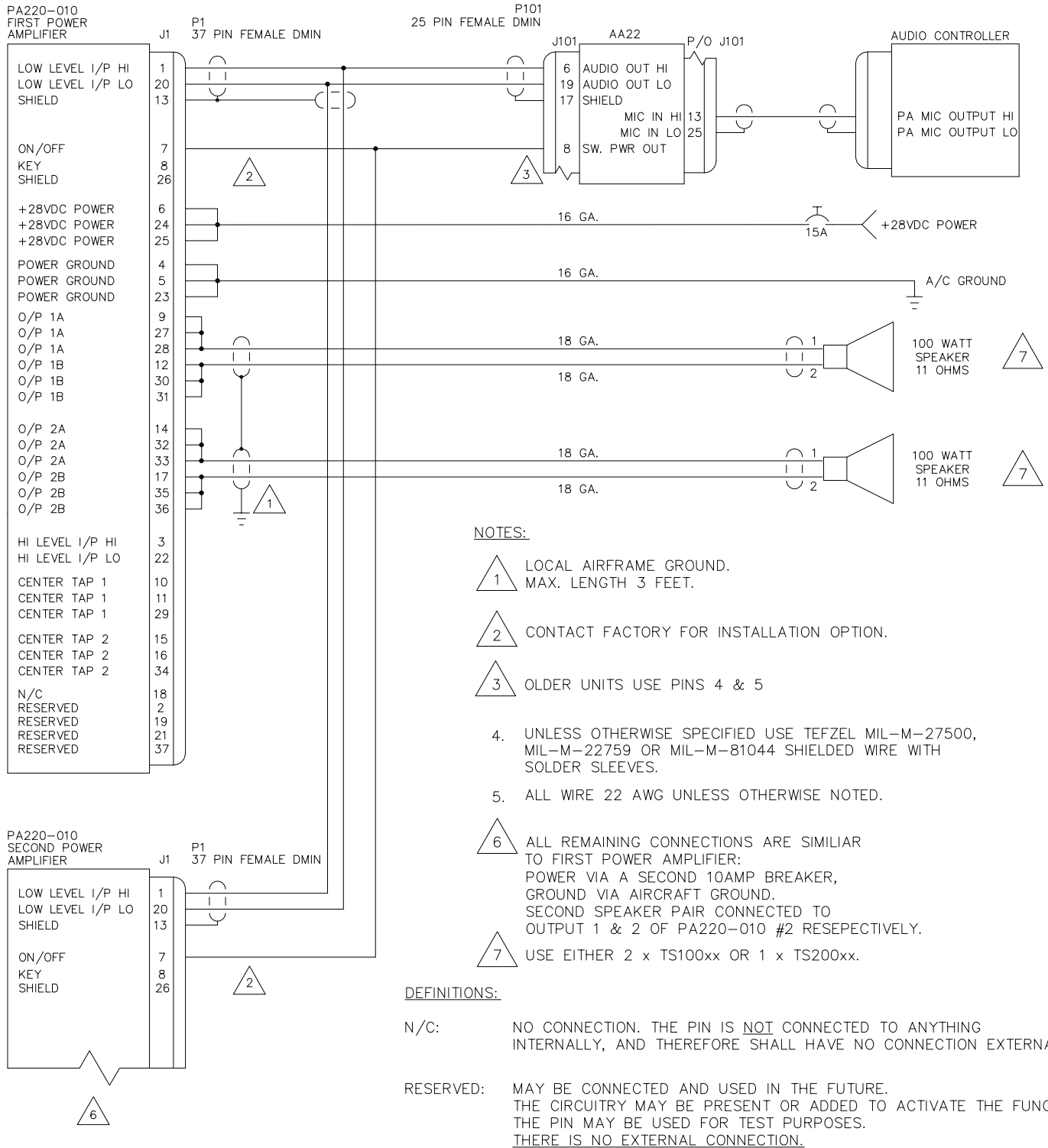


CENTER OF GRAVITY





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TOLERANCES UNLESS STATED OTHERWISE	DESIGNED	KV	CONFIDENTIAL AND PROPRIETARY TO NAT LTD.		
0.X=+/-0.030	DRAWN	TGM	nat NORTHERN AIRBORNE TECHNOLOGY LTD.		
0.XX=+/-0.010	DATE	FEB 17/98	TITLE		
0.XXX=+/-0.005	CHECKED	NAT 255	LOUDHAILER POWER AMPLIFIER		
0.XXXX=+/-0.002	APPROVED	NAT 131	SIZE	CAGE CODE	PART NO.
ANGLE=+/- 0.5 DEG.			B	3AB01	PA110-015
MASS: 4.83 lbs. (2.2 Kg)			REV.	SHEET	
MATERIAL: -			1.21	1/1	
FINISH: POWDER COATING	FILE	922-0.DWG	DWG. TYPE	MECH. INSTALLATION	DWG. NO. PA110\015\922-0

REVISIONS			
REV	DESCRIPTION	DATE	BY
B	FORMAT CHANGES.	OCT 13/93	KV
1.11	ADDED NOTES 1-3, FORMAT CHANGES	DEC 20/94	KV
1.12	ECR #1397 - RENUMBERED NOTES, FORMAT CHANGES.	APR 3/03	TAT

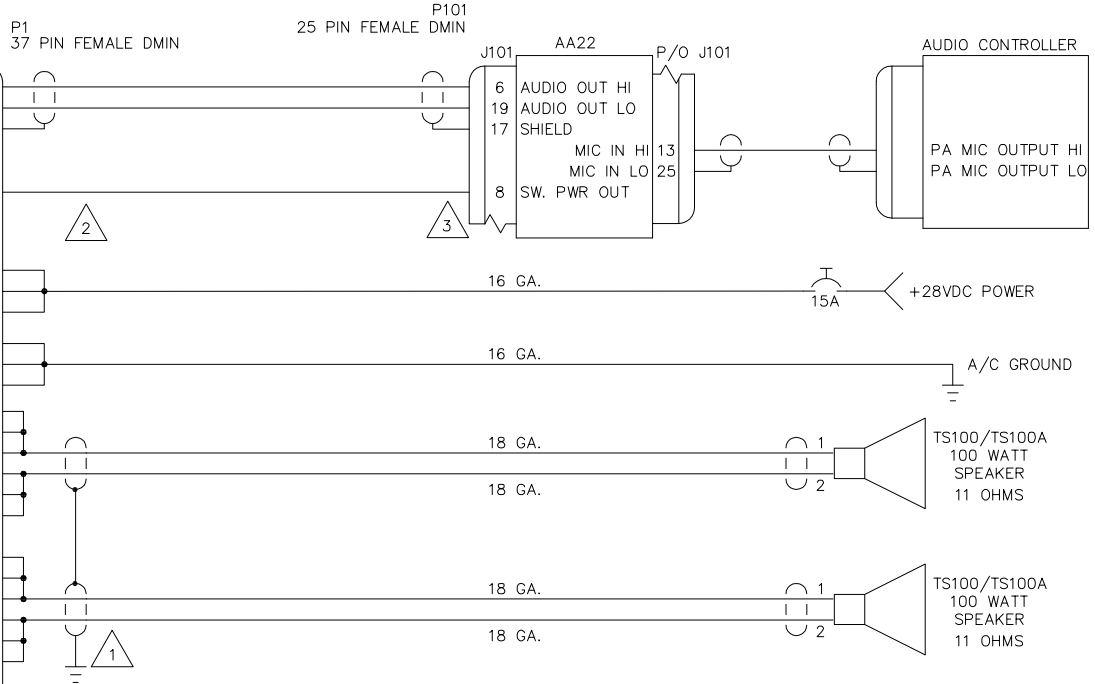


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DESIGNED	KV	 NAT NORTHERN AIRBORNE TECHNOLOGY LTD.				
DRAWN	KV					
DATE	JUL 23/90	TITLE				
CHECKED	 NAT 114  NAT 255	LOUDHAILER POWER AMPLIFIER 2 x 200 WATT CONFIGURATION WITH AA22 PA/SIREN SYSTEM				
APPROVED	 NAT 107	SIZE	CAGE CODE	PART NO.	REV.	SHEET
FILE	403-0112.DWG	A	3AB01	PA220-010	1.12	1/1
DWG. TYPE		INTERCONNECT		DWG. NO.		PA220\010\403-0

PA220-010
FIRST POWER
AMPLIFIER

LOW LEVEL I/P HI	1
LOW LEVEL I/P LO	20
SHIELD	13
ON/OFF	7
KEY	8
SHIELD	26
+28VDC POWER	6
+28VDC POWER	24
+28VDC POWER	25
POWER GROUND	4
POWER GROUND	5
POWER GROUND	23
O/P 1A	9
O/P 1A	27
O/P 1A	28
O/P 1B	12
O/P 1B	30
O/P 1B	31
O/P 2A	14
O/P 2A	32
O/P 2A	33
O/P 2B	17
O/P 2B	35
O/P 2B	36
HI LEVEL I/P HI	3
HI LEVEL I/P LO	22
CENTER TAP 1	10
CENTER TAP 1	11
CENTER TAP 1	29
CENTER TAP 2	15
CENTER TAP 2	16
CENTER TAP 2	34
N/C	18
RESERVED	2
RESERVED	19
RESERVED	21
RESERVED	37



NOTES:



- 1 LOCAL AIRFRAME GROUND. MAX. LENGTH 3 FEET.
- 2 CONTACT FACTORY FOR INSTALLATION OPTION.
- 3 OLDER UNITS USE PINS 4 & 5
- 4 UNLESS OTHERWISE SPECIFIED USE TEFLON MIL-M-27500, MIL-M-22759 OR MIL-M-81044 SHIELDED WIRE WITH SOLDER SLEEVES.
- 5 ALL WIRE 22 AWG UNLESS OTHERWISE NOTED.

DEFINITIONS:

N/C: NO CONNECTION. THE PIN IS NOT CONNECTED TO ANYTHING INTERNALLY, AND THEREFORE SHALL HAVE NO CONNECTION EXTERNALLY.

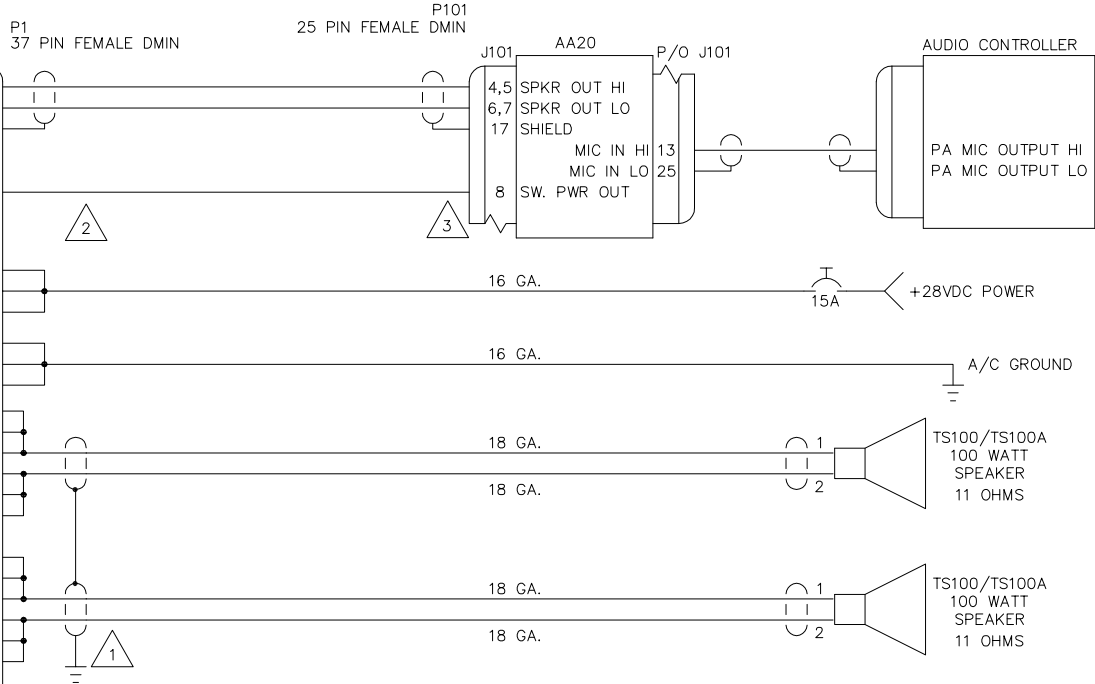
RESERVED: MAY BE CONNECTED AND USED IN THE FUTURE. THE CIRCUITRY MAY BE PRESENT OR ADDED TO ACTIVATE THE FUNCTION. THE PIN MAY BE USED FOR TEST PURPOSES. THERE IS NO EXTERNAL CONNECTION.

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DESIGNED	KV	 NAT NORTHERN AIRBORNE TECHNOLOGY LTD.				
DRAWN	TAT					
DATE	JAN 31/00	TITLE				
CHECKED	NAT PROD. 223 190	LOUDHAILER POWER AMPLIFIER 200 WATT CONFIGURATION WITH AA22 PA/SIREN SYSTEM				
APPROVED		SIZE	CAGE CODE	PART NO.	REV.	SHEET
FILE	403-1100.DWG	A	3AB01	PA220-010	1.00	1/1
DWG. TYPE		INTERCONNECT		DWG. NO. PA220\010\403-1		

PA220-010
FIRST POWER
AMPLIFIER

HI LEVEL I/P HI	3
HI LEVEL I/P LO	22
SHIELD	13
ON/OFF	7
KEY	8
SHIELD	26
+28VDC POWER	6
+28VDC POWER	24
+28VDC POWER	25
POWER GROUND	4
POWER GROUND	5
POWER GROUND	23
O/P 1A	9
O/P 1A	27
O/P 1A	28
O/P 1B	12
O/P 1B	30
O/P 1B	31
O/P 2A	14
O/P 2A	32
O/P 2A	33
O/P 2B	17
O/P 2B	35
O/P 2B	36
LOW LEVEL I/P HI	1
LOW LEVEL I/P LO	20
CENTER TAP 1	10
CENTER TAP 1	11
CENTER TAP 1	29
CENTER TAP 2	15
CENTER TAP 2	16
CENTER TAP 2	34
N/C	18
RESERVED	2
RESERVED	19
RESERVED	21
RESERVED	37



NOTES:

- 1 LOCAL AIRFRAME GROUND.
MAX. LENGTH 3 FEET.
- 2 CONTACT FACTORY FOR INSTALLATION OPTION.
- 3 OLDER UNITS USE PINS 4 & 5
- 4 UNLESS OTHERWISE SPECIFIED USE TEFLON MIL-M-27500,
MIL-M-22759 OR MIL-M-81044 SHIELDED WIRE WITH
SOLDER SLEEVES.
- 5 ALL WIRE 22 AWG UNLESS OTHERWISE NOTED.

DEFINITIONS:

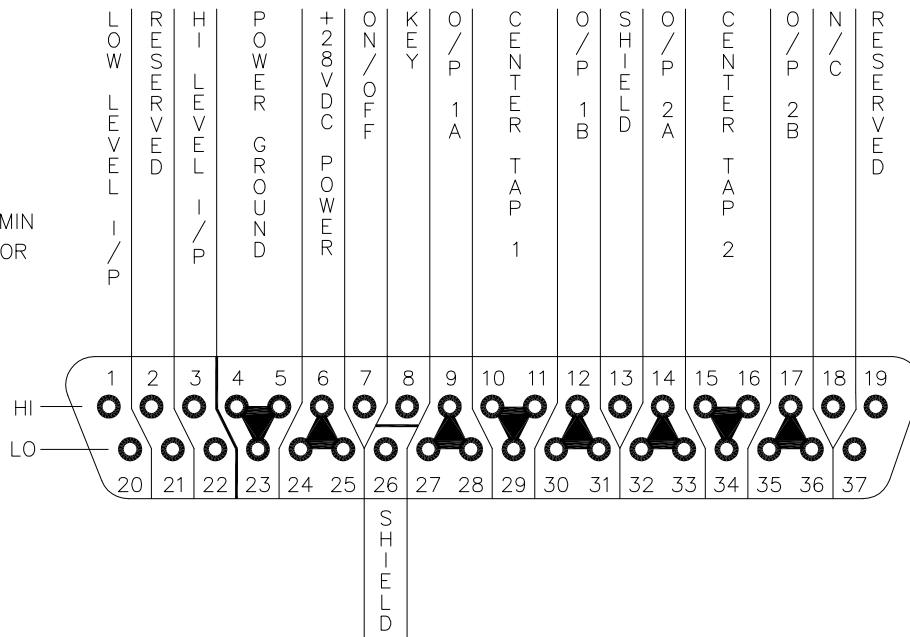
- N/C: NO CONNECTION. THE PIN IS NOT CONNECTED TO ANYTHING INTERNALLY, AND THEREFORE SHALL HAVE NO CONNECTION EXTERNALLY.
- RESERVED: MAY BE CONNECTED AND USED IN THE FUTURE. THE CIRCUITRY MAY BE PRESENT OR ADDED TO ACTIVATE THE FUNCTION. THE PIN MAY BE USED FOR TEST PURPOSES. THERE IS NO EXTERNAL CONNECTION.

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DESIGNED	KV	NAT NORTHERN AIRBORNE TECHNOLOGY LTD.				
DRAWN	TAT					
DATE	FEB 2/00	TITLE	LOUDHAILER POWER AMPLIFIER 200 WATT CONFIGURATION WITH AA20 PA/SIREN SYSTEM			
CHECKED						
APPROVED		SIZE	CAGE CODE	PART NO.	REV.	SHEET
FILE	403-2100.DWG	A	3AB01	PA220-010	1.00	1/1
DWG. TYPE		INTERCONNECT		DWG. NO. PA220\010\403-2		

REVISIONS			
REV	DESCRIPTION	DATE	BY
1.01	FORMAT CHANGES.	NOV 24/94	TB
1.02	ECR #1397 – CORRECTED LABELS, FORMAT CHANGES	MAR 31/03	TAT





P1
37 PIN FEMALE DMIN
MATING CONNECTOR



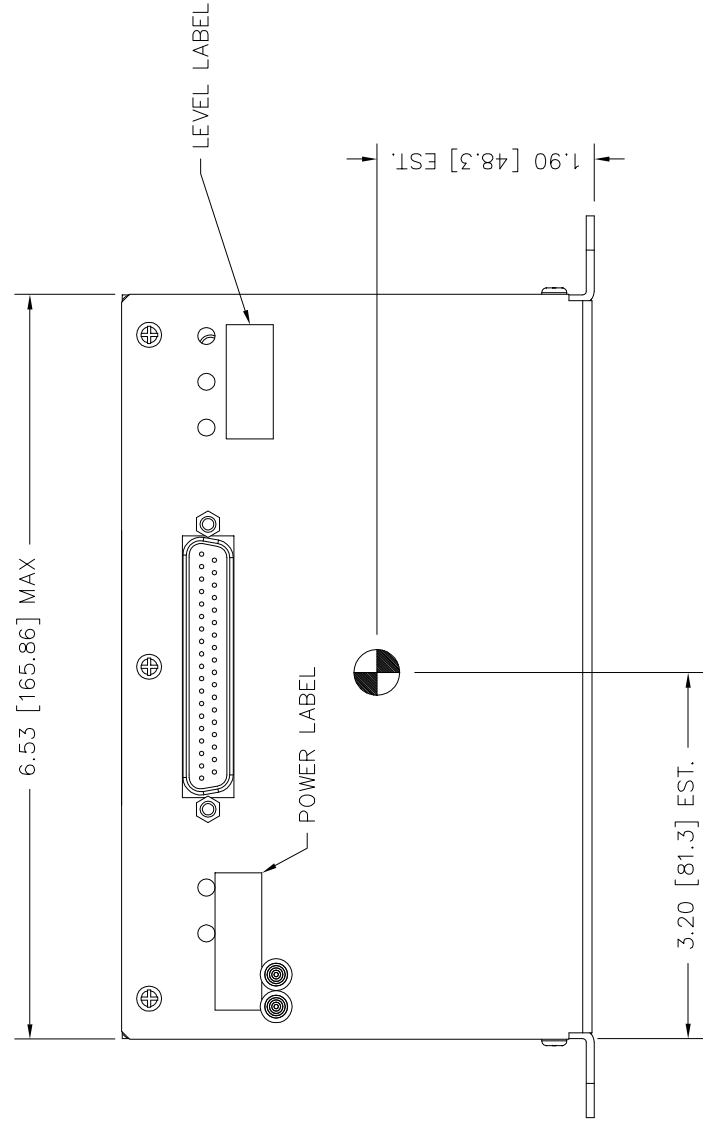
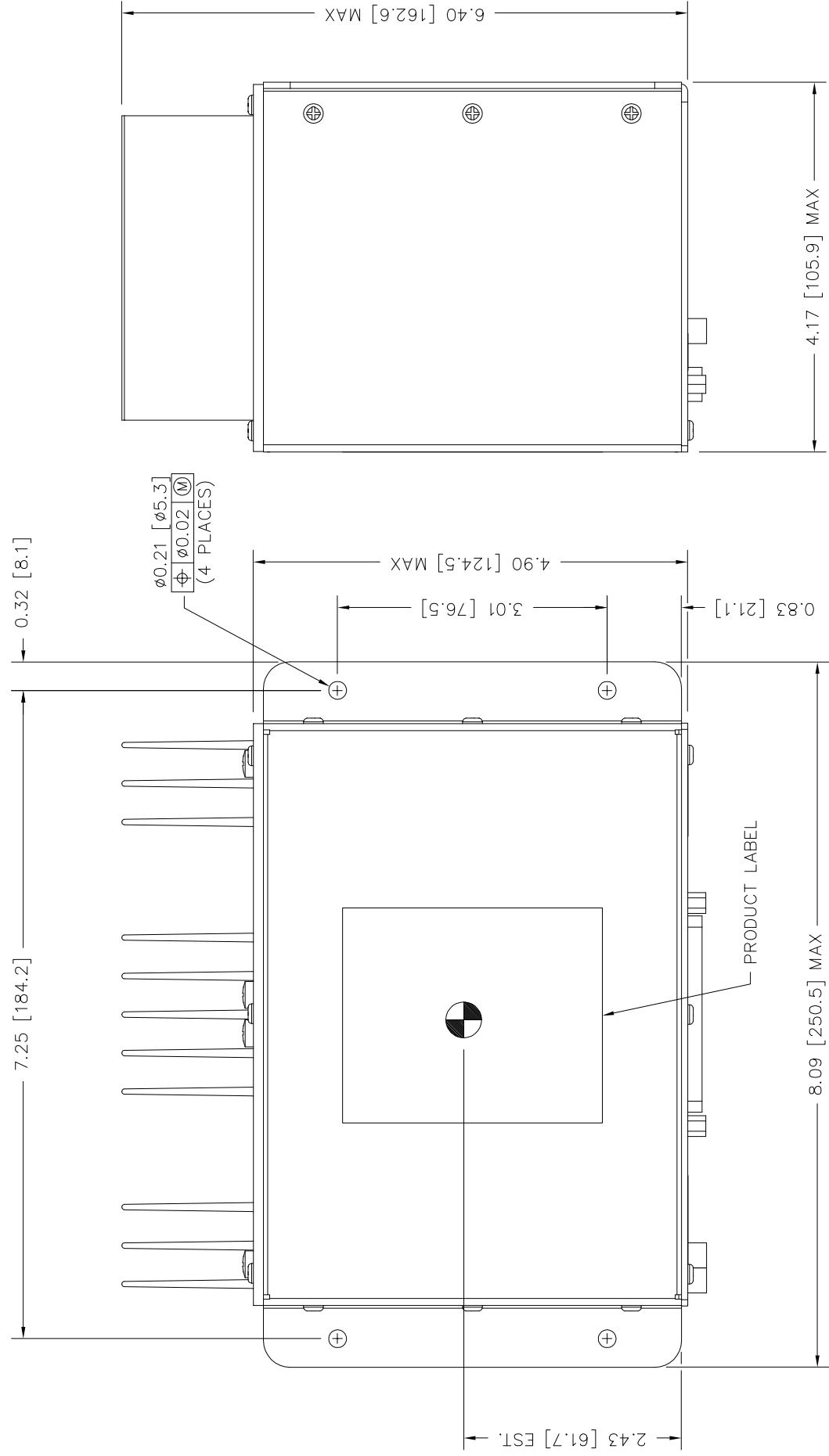
▲ DENOTES PINS CONNECTED INTERNALLY.

VIEW IS FROM REAR OF AIRFRAME CONNECTOR

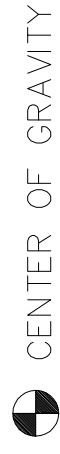
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DESIGNED	KV	 NAT NORTHERN AIRBORNE TECHNOLOGY LTD.				
DRAWN	KV					
DATE	MAY 15/98	TITLE				
CHECKED	 	LOUDHAILER POWER AMPLIFIER				
APPROVED		SIZE	CAGE CODE	PART NO.	REV.	SHEET
FILE	405-0102.DWG	A	3AB01	PA220-010	1.02	1/1
DWG. TYPE		CONNECTOR MAP		DWG. NO. PA220\010\405-0		

REVISIONS			
REV	DESCRIPTION	DATE	BY
1.10	CHANGED TO NEW DRAWING FORMAT	NOV 24/94	KV
1.11	HOLE LOCATIONS CHANGED	OCT 27/95	KV
1.12	ECR #1397 - ADDED DIMENSIONS, TOP LABEL AND CENTER OF GRAVITY, FORMAT CHANGES.	FEB 2/00	TAT
1.20	ECR #1708 - LABEL UPDATED, FORMAT CHANGES.	JAN 23/04	TAT
1.21	DOCCR01066 - DIM CORRECTIONS, FORMAT CHANGES.	APR 12/06	MWS



NOTES:
 1. DIMENSIONING AND TOLERANCING
 IN ACCORDANCE WITH ASME Y14.5M-1994



CENTER OF GRAVITY

CONFIDENTIAL AND PROPRIETARY TO NAT LTD.

TOLERANCES UNLESS STATED OTHERWISE	DESIGNED	KV	CONFIDENTIAL AND PROPRIETARY TO NAT LTD.	
0.X= +/-0.030	DRAWN	KV	nat NORTHERN AIRBORNE TECHNOLOGY LTD.	
0.XX= +/-0.010	DATE	JUN 1/89	TITLE	LOUDHAILER
0.XXX= +/-0.005	CHECKED	NAT 255	POWER AMPLIFIER	
0.XXXX= +/-0.002	APPROVED	NAT 131	SIZE	B
ANGLE= +/- 0.5 DEG.	FILE	922-0.DWG	CAGE CODE	3AB01
MASS: 7.14 lbs. (3.69 Kg)			PART NO.	PA220-010
MATERIAL: -			MECH. INSTALLATION	DWG. NO. PA220\010\922-0
FINISH: POWDER COATING			REV.	1.21
			SHEET	1/1



PA110/220 High Power Audio Amplifiers SM35 Installation and Operation Manual

Section 3 Operation

3.1 Introduction

Information in this section consists of the functional and operational procedures for the PA110/220 High Power Audio Amplifiers.

3.2 General Information

The PA110/220 High Power Audio Amplifiers are designed for use in high power external loud hailer systems where high power levels are the primary requirement. Because high power (not high fidelity) is the goal, the PA110 and PA220 ARE NOT ACCEPTABLE for use as a high power cabin audio system.

The PA110/220 High Power Audio Amplifiers have no operator accessible controls. Refer to the AA21 or AA22 Operator's Manual for more detailed information.

<p style="text-align: center;"><u>WARNING:</u> High volume settings can cause hearing damage. Prior to operation, set any volume control to the minimum setting, and slowly increase the volume to a suitable level.</p>

Section 3 ends
