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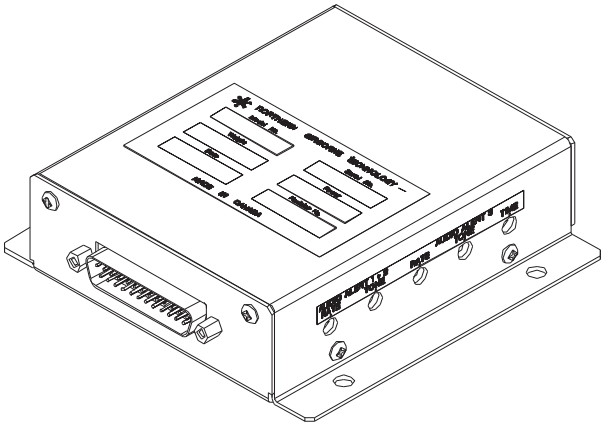
SM39

AA37 Series
Alerting System



INSTALLATION AND OPERATION MANUAL

REV 5.00 April 16, 2012

Anodyne Electronics Manufacturing Corp.
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Kelowna BC, Canada
V1Y 4N7

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Prepared By:	Checked By:	Approved By:
Tony Pearson Designer Apr 16, 2012	Loen Clement Designer May 24/12	Tom Betzelt Product Support Manager May 28, 2012

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.

AEM MANUAL REVISIONS

Section	Revision Number	Revision Description	Date
All	Rev: 5.00	Updated drawings and template	April 16, 2012

Table of Contents

Section 1.0 Description

1.1 Introduction

This manual contains information on the AA37 series Alerting Systems.

Information in this section consists of purpose of equipment, features and specifications.

1.2 Purpose of Equipment

The AA37 series are dual channel Alerting Systems that provide two or three level alerting.

1.3 Features

The AA37 Alerting Systems are compact, remote mounted units. All outputs are fully isolated to allow installation in dual audio controller systems. Trigger inputs can be active low or active high dependent on the model, allowing easy interface to common aircraft systems. The tone and rate of the alerts are adjustable to allow tailoring of the tones to ensure they do not interfere with existing airframe warning functions.

1.4 Specifications

1.4.1 Electrical Specifications

Input Power	27.5 Vdc at 200 mA (nominal)
Input Signals	
Alert 1	
AA37-001	2 active low triggers, 30 mA max.
AA37-002	2 active high triggers, 30 mA max.
AA37-212	2 active low triggers, 30 mA max.
Alert 2 (all models)	2 active low triggers, 30 mA max.
Alert 3 (AA37-212 only)	2 active low triggers, 3 mA max.
Output Signals	2 headset outputs
Output Level into 600 Ω	
100%	30 mW
50%	15 mW
33%	10 mW

Output Level into 150 Ω	
100%	11 mW
50%	6 mW
33%	4 mW
Output Impedance	
100% output	900 Ω ±10%
50% output	1.6 kΩ ±10%
33% output	2.1 kΩ ±10%
Tone Frequency	
Alert 1 & 2	Adjustable tone from 750 Hz to 2.3 kHz.
Alert 2	Adjustable rate from 1 Hz to 20 Hz.
Alert 3 (AA37-212 only)	Adjustable tone and rate as above with duration of 1 to 3 seconds.
Audio Noise Level	> 60 dB down from rated output.
Crosstalk	< -60 dB output to output.

1.4.2 Physical Specifications

Height	31.7 mm (1.25 inches)
Length	111.7 mm (4.4 inches)
Width	114.3 mm (4.5 inches)
Weight	
AA37-001 and -002	220 g (0.49 lb)
AA37-212	230 g (0.51 lb)
Mounting	Bulkhead mount with four 10-32 screws.
Material/Finish	Chassis & cover are 5052-H32 brushed aluminium with chromate conversion finish.
Connectors	25 pin Male D-subminiature connector with jack posts

1.4.3 Environmental Specifications

Temperature	
Operating	-20 C to +55 C
Survival	-55 C to +85 C
Altitude	25,000 ft
Humidity	95%

1.5 Unit Nomenclature

Model	Description / Distinction
AA37-212	Dual channel, 3 level alerting. Provides alerting for AA94/AMS42/44. Floating outputs, 150 - 600 Ω loads. Low level triggers.
AA37-001	Dual channel, 2 level alerting. Audible output tones for ICS call or alerting. Floating outputs, 150 - 600 Ω loads. Low level triggers.
AA37-002	Dual channel, 2 level alerting. Audible output tones for ICS call or alerting. Floating outputs, 150 - 600 Ω loads. High level triggers for Alert #1. Low level triggers for Alert #2.

End of Section 1.0

Section 2.0 Installation

2.1 Introduction

Information in this section consists of: unpacking and inspection procedures, installation procedures, post-installation checks, and installation drawings.

2.2 Unpacking and Inspection

Unpack the equipment carefully. Inspect the unit visually for damage due to shipping and report all such claims immediately to the carrier involved. Note that each unit should have the following:

- AA37 Dual Channel Alerting System
- Product Information Card
- Release Certification

Verify that all items are present before proceeding and report any shortage immediately to your supplier.

All Anodyne Electronics Manufacturing Corp. (AEM) products are warranted for 2 years. See the website www.aem-corp.com/warranty for complete details.

2.3 Installation Procedures

2.3.1 Warnings

Do not bundle any lines from this unit with transmitter coax lines, or AM audio rectification may result. Do not bundle any input or output audio, or DC power lines from this unit with 400 Hz synchro wiring or AC power lines. Do not position this unit or wiring from this unit next to any device with a strong alternating magnetic field such as an inverter, or significant audio interference will result.

2.3.2 Cautions

In all installations, use shielded cable exactly as shown and ground as indicated. Significant problems may result from not following these guidelines, especially with regard to ground loop noise.

2.3.3 Cabling and Wiring

For shielded wire applications, use Tefzel Mil-M-27500 or Mil-M-81044 shielded wire with solder sleeves (for shield terminations) to make the most compact and easy to terminate interconnect. Follow the wiring diagrams in Section 2.4 as required.

Allow 3 inches from the end of the wire to the shield termination to allow the hood to be easily installed. Note that the hood is a “clamshell” hood, and is installed after the wiring is complete.

All wiring should be at least 22 AWG. Ensure that all ground connections are clean and well secured.

2.3.4 Post-Installation Checks

2.3.4.1 Voltage/resistance checks

Do not attach the AA37 until the following conditions are met.

Check the following:

a) P101 pin **<1>** for +28 Vdc relative to ground.

b) P101 pin **<14>** for continuity to ground (below 0.5 Ω).

2.3.4.2. Alert 1

a) Install the AA37. Power up the ship's systems. Connect a headset to the pilot's headset jack and activate the AA37 Alert 1 trigger circuit. There should be a continuous tone with no unusual noises or disruptions heard in the headset. Reset the AA37 Alert 1 trigger circuit.

b) Activate the second AA37 Alert 1 trigger circuit, if installed. There should be a continuous tone with no unusual noises or disruptions heard in the headset. Reset the AA37 Alert 1 trigger circuit.

c) Repeat steps **2.3.4.2 a)** and **b)** for the copilot's headset, if the feature is used in the installation.

2.3.4.5 Alert 2

a) Activate the AA37 Alert 2 trigger circuit. There should be an intermittent (hi/lo) tone with no unusual noises or disruptions heard in the headset. Reset the AA37 Alert 2 trigger circuit.

b) Activate the second AA37 Alert 2 trigger circuit, if installed. There should be an intermittent (hi/lo) tone with no unusual noises or disruptions heard in the headset. Reset the AA37 Alert 2 trigger circuit.

c) Repeat steps **2.3.4.5 a)** and **b)** for the copilot's headset, if the feature is used in the installation.

2.3.4.6 Alert 3 (AA37-212 only)

a) Activate the AA37 Alert 3 trigger circuit. There should be a swept tone of 1 to 3 seconds duration, with no unusual noises or disruptions heard in the headset. Reset the AA37 Alert 3 trigger circuit.

b) Activate the second AA37 Alert 3 trigger circuit, if installed. There should be a swept tone of 1 to 3 seconds duration, with no unusual noises or disruptions heard in the headset. Reset the AA37 Alert 3 trigger circuit.

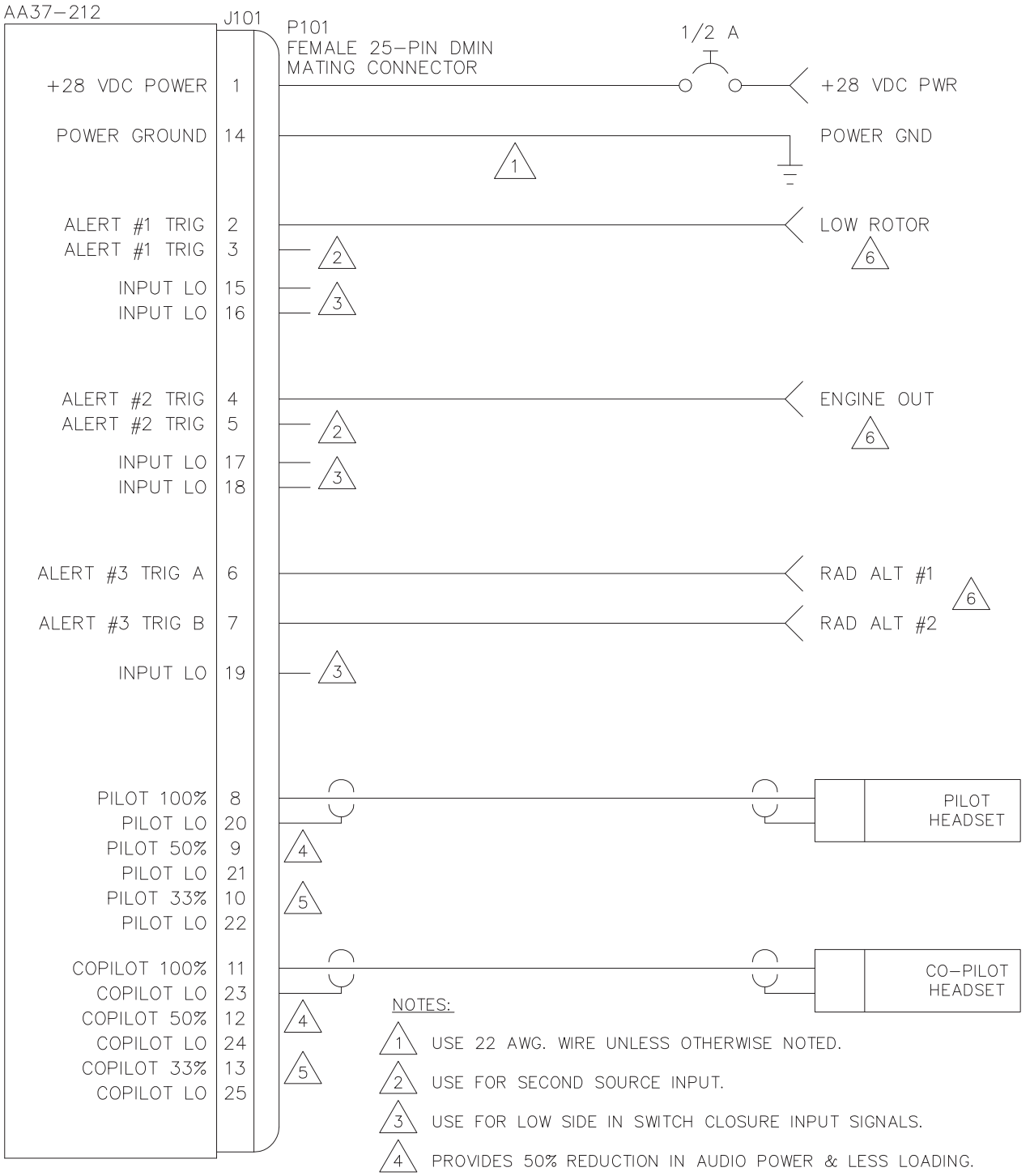
c) Repeat steps **2.3.4.6 a)** and **b)** for the copilot's headset, if the feature is used in the installation.

2.4 Installation Drawings

DRAWING	REV.	DESCRIPTION	TYPE
AA37\212\403-0	1.02	Alerting System	Interconnect
AA37\212\405-0	1.01	Alerting System	Connector Map
AA37\212\922-0	1.00	Alerting System	Mechanical
AA37\001\403-0	1.01	Alerting System	Interconnect
AA37\001\405-0	1.00	Alerting System	Connector Map
AA37\001\922-0	1.01	Alerting System	Mechanical
AA37\002\403-0	1.01	Alerting System	Interconnect
AA37\002\405-0	1.00	Alerting System	Connector Map

Section 2.0 ends following the above documents

REVISIONS			
REV	DESCRIPTION	DATE	BY
1.01	FORMAT CHANGES, DRAWING CORRECTIONS	APR 16/97	MWS
1.02	ECR #857 CORRECTED NOTE 5, WAS 33% REDUCTION	JUN 11/97	MWS



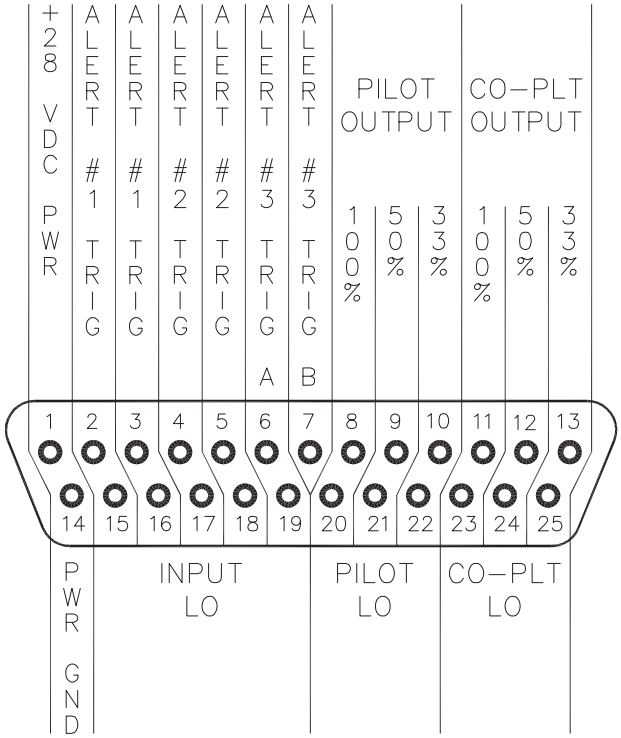
NOTES:

1. USE 22 AWG. WIRE UNLESS OTHERWISE NOTED.
2. USE FOR SECOND SOURCE INPUT.
3. USE FOR LOW SIDE IN SWITCH CLOSURE INPUT SIGNALS.
4. PROVIDES 50% REDUCTION IN AUDIO POWER & LESS LOADING.
5. PROVIDES 67% REDUCTION IN AUDIO POWER & THE LEAST LOADING.
6. EXAMPLES OF ALERT TRIGGERS.

DESIGNED	KV	nat NORTHERN AIRBORNE TECHNOLOGY LTD.				
DRAWN	KV					
DATE	MAY 3/88	TITLE	DUAL CHANNEL ALERTING SYSTEM			
CHECKED	NAT PROD. 105					
APPROVED	NAT 107	SIZE A	CAGE CODE 3AB01	PART NO. AA37-212	REV. 1.02	SHEET 1/1
FILE 403-0102.DWG		DWG. TYPE INTERCONNECT		DWG. NO. AA37\212\403-0		

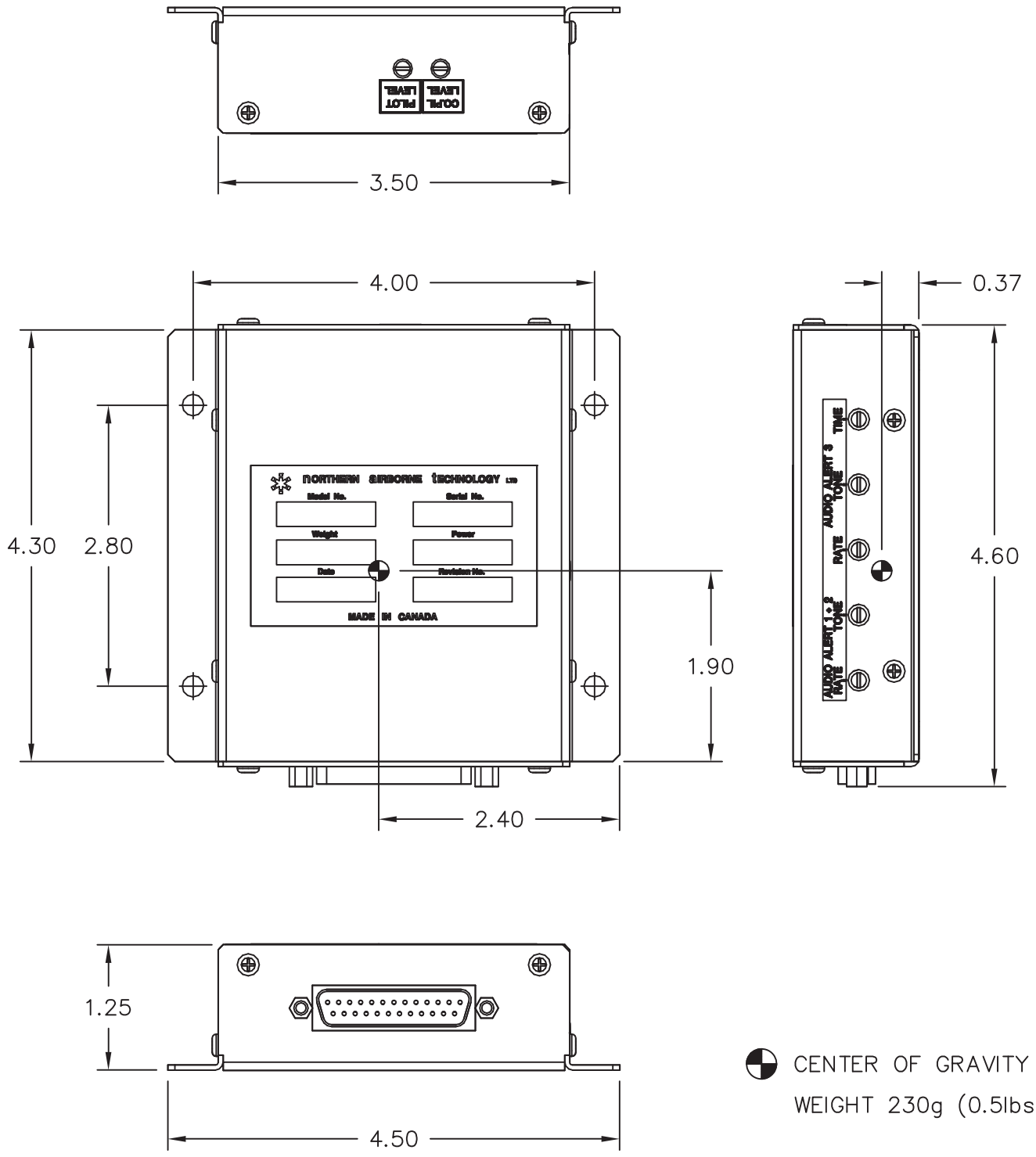
REVISIONS			
REV	DESCRIPTION	DATE	BY
1.01	FORMAT CHANGES	APR 9/97	MWS

P101
FEMALE 25 PIN D–MIN
MATING CONNECTOR



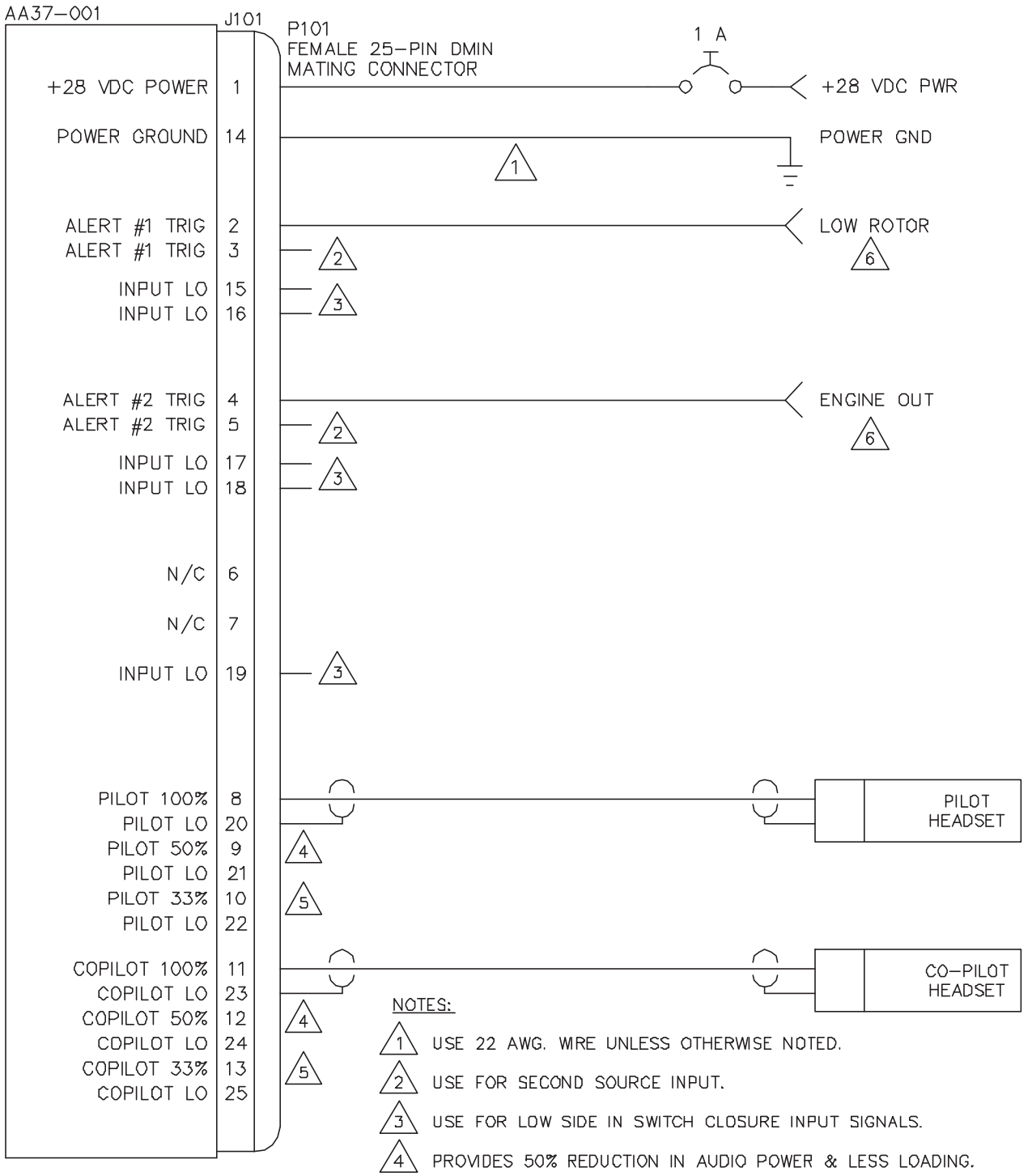
VIEW IS FROM REAR OF AIRFRAME CONNECTOR

DESIGNED	KV	nat NORTHERN AIRBORNE TECHNOLOGY LTD.				
DRAWN	KV					
DATE	APR 26/88	TITLE	DUAL CHANNEL ALERTING SYSTEM			
CHECKED	NAT PROD. 105					
APPROVED	NAT 107	SIZE A	CAGE CODE 3AB01	PART NO. AA37–212	REV. 1.01	SHEET 1/1
FILE 405–0101.DWG		DWG. TYPE CONNECTOR MAP		DWG. NO. AA37\212\405–0		



DESIGNED	KV	NORTHERN AIRBORNE TECHNOLOGY LTD.					
DRAWN	MWS						
DATE	APR 10/97	TITLE	DUAL CHANNEL ALERTING SYSTEM				
CHECKED	NAT PROD. 105						
APPROVED	NAT 107	SIZE A	CAGE CODE 3AB01	PART NO. AA37-212		REV. 1.00	SHEET 1/1
FILE 922-0100.DWG		DWG. TYPE MECH. INSTALLATION		DWG. NO. AA37\212\922-0			

REVISIONS			
REV	DESCRIPTION	DATE	BY
1.01	ECR #857 CORRECTED NOTE 5, WAS 33% REDUCTION	JUN 11/97	MWS



NOTES:

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3. USE FOR LOW SIDE IN SWITCH CLOSURE INPUT SIGNALS.
4. PROVIDES 50% REDUCTION IN AUDIO POWER & LESS LOADING.
5. PROVIDES 67% REDUCTION IN AUDIO POWER & THE LEAST LOADING.
6. EXAMPLES OF ALERT TRIGGERS.

DESIGNED	KV
DRAWN	MWS
DATE	APR 11/97
CHECKED	NAT PROD. 105
APPROVED	NAT 107

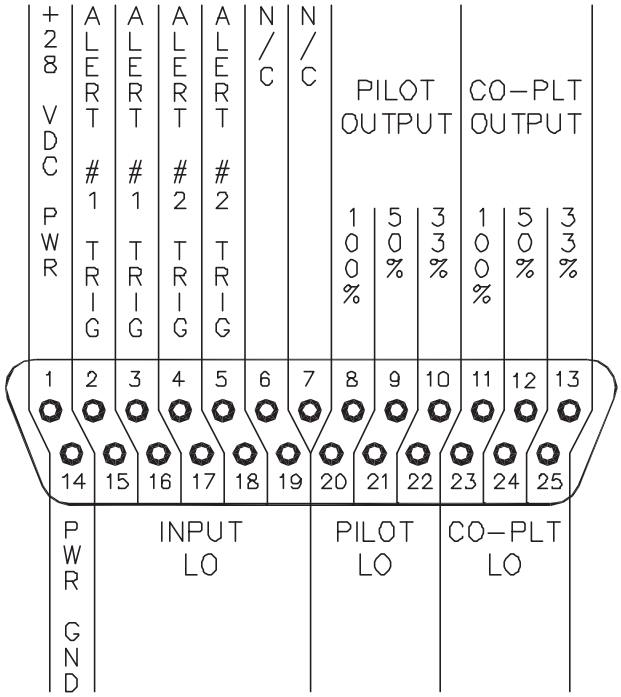
NORTHERN AIRBORNE TECHNOLOGY LTD.

TITLE: DUAL CHANNEL ALERTING SYSTEM

SIZE	CAGE CODE	PART NO.	REV.	SHEET
A	3AB01	AA37-001	1.01	1/1

FILE 403-0101.DWG	DWG. TYPE INTERCONNECT	DWG. NO. AA37\001\403-0

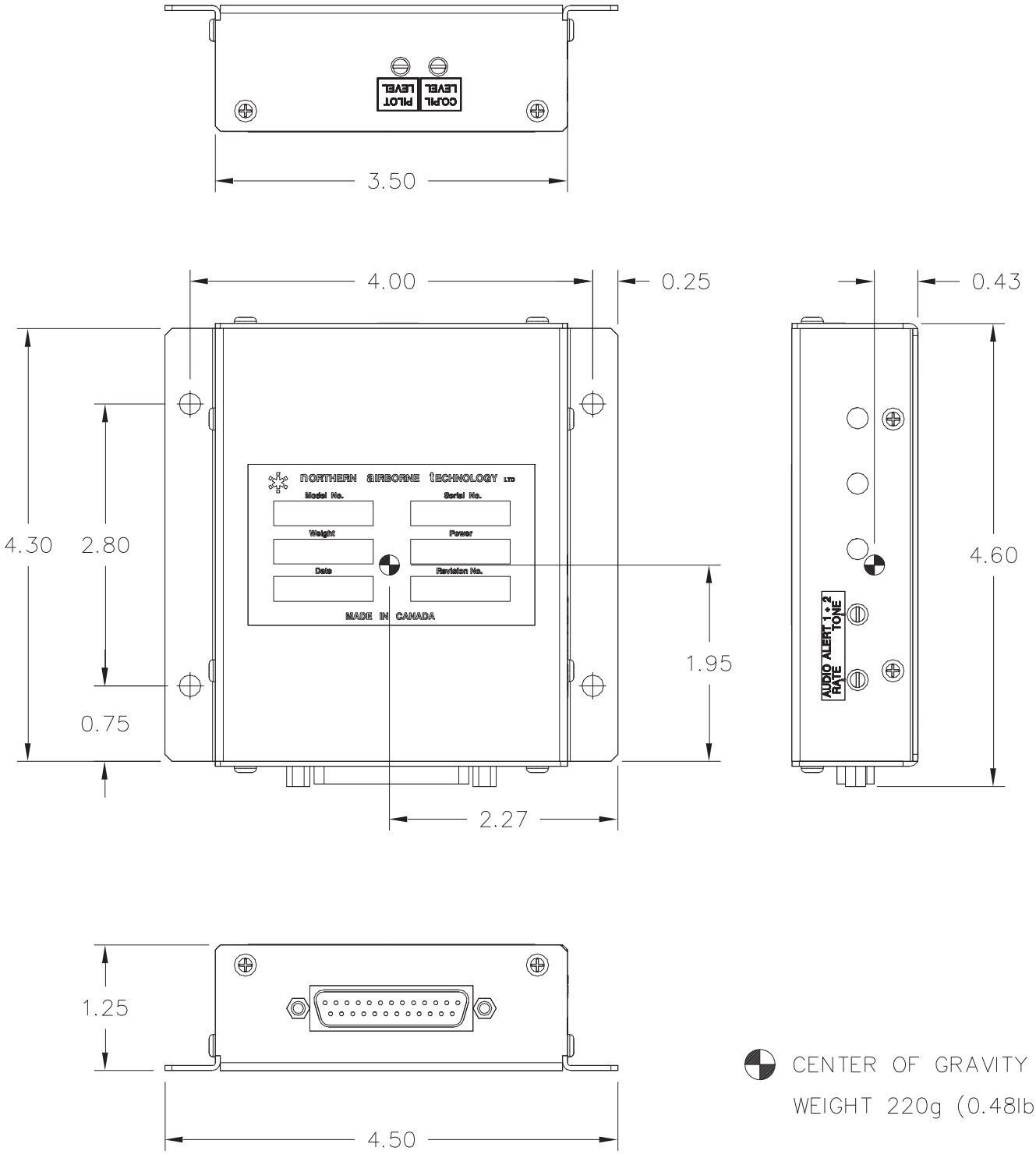
P101
FEMALE 25 PIN D–MIN
MATING CONNECTOR



VIEW IS FROM REAR OF AIRFRAME CONNECTOR

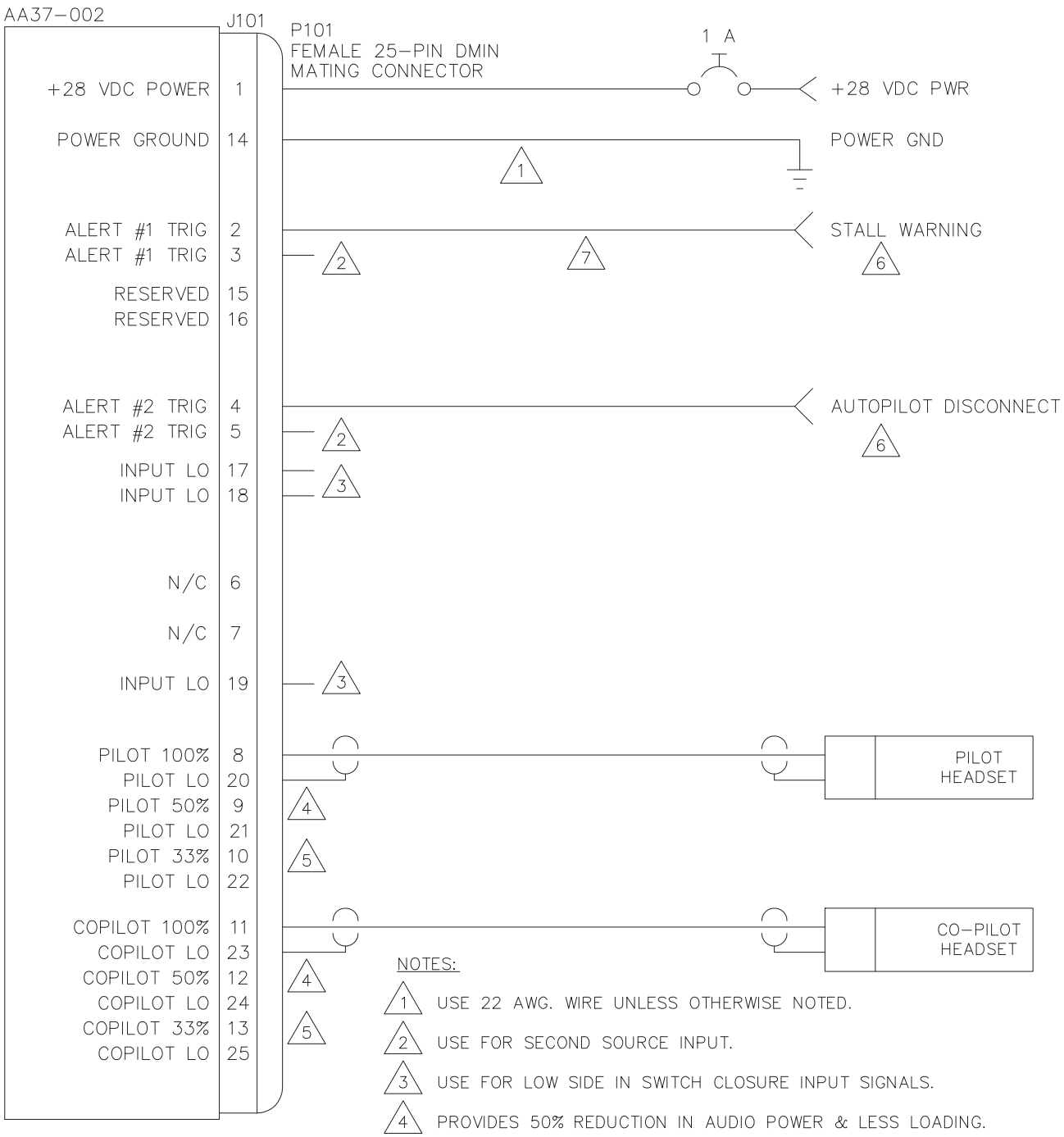
DESIGNED	KV	NORTHERN AIRBORNE TECHNOLOGY LTD.					
DRAWN	MWS						
DATE	APR 11/97	TITLE	DUAL CHANNEL ALERTING SYSTEM				
CHECKED	NAT PROD. 105						
APPROVED	NAT 107	SIZE A	CAGE CODE 3AB01	PART NO. AA37–001		REV. 1.00	SHEET 1/1
FILE 405–0100.DWG		DWG. TYPE CONNECTOR MAP		DWG. NO. AA37\001\405–0			

REVISIONS			
REV	DESCRIPTION	DATE	BY
1.01	ECR #954 – 0.25, 0.75 DIMENSIONS ADDED.	SEP 3/97	TGM



DESIGNED	KV	nat NORTHERN AIRBORNE TECHNOLOGY LTD.					
DRAWN	MWS						
DATE	APR 17/97	TITLE	DUAL CHANNEL ALERTING SYSTEM				
CHECKED	NAT 209						
APPROVED	NAT 107	SIZE A	CAGE CODE 3AB01	PART NO. AA37–001		REV. 1.01	SHEET 1/1
FILE 922–0101.DWG		DWG. TYPE MECH. INSTALLATION		DWG. NO. AA37\001\922–0			

REVISIONS			
REV	DESCRIPTION	DATE	BY
1.01	ECR #857 CORRECTED NOTE 5, WAS 33% REDUCTION	JUN 11/97	MWS



NOTES:

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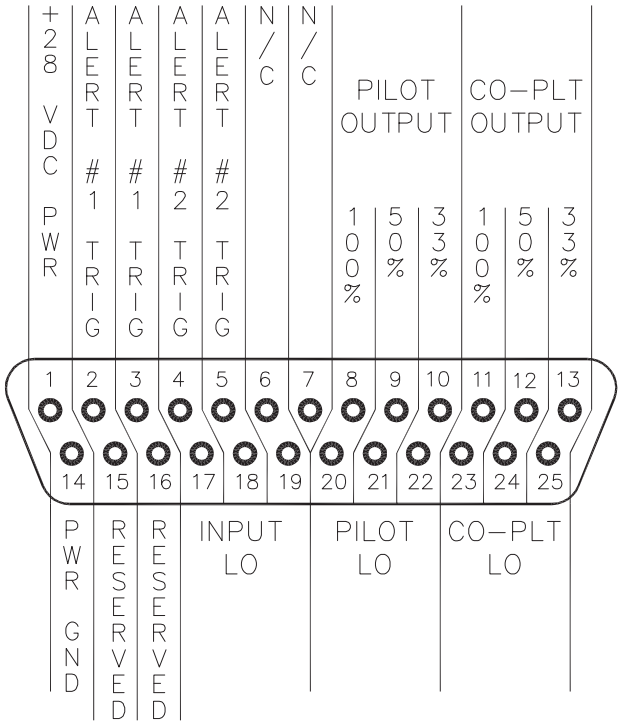
3. USE FOR LOW SIDE IN SWITCH CLOSURE INPUT SIGNALS.
4. PROVIDES 50% REDUCTION IN AUDIO POWER & LESS LOADING.
5. PROVIDES 67% REDUCTION IN AUDIO POWER & THE LEAST LOADING.
6. EXAMPLES OF ALERT TRIGGERS.
7. ALERT 1 REQUIRES +28VDC TO TRIGGER

DESIGNED	KV	nat NORTHERN AIRBORNE TECHNOLOGY LTD.					
DRAWN	MWS						
DATE	APR 16/97	TITLE	DUAL CHANNEL ALERTING SYSTEM				
CHECKED	NAT PROD. 105						
APPROVED	NAT 107	SIZE A	CAGE CODE 3AB01	PART NO. AA37-002		REV. 1.01	SHEET 1/1
FILE 403-0101.DWG		DWG. TYPE INTERCONNECT		DWG. NO. AA37\002\403-0			

P101
FEMALE 25 PIN D-MIN
MATING CONNECTOR



VIEW IS FROM REAR OF AIRFRAME CONNECTOR

DESIGNED	KV	nat NORTHERN AIRBORNE TECHNOLOGY LTD.					
DRAWN	MWS						
DATE	APR 23/97	TITLE	DUAL CHANNEL ALERTING SYSTEM				
CHECKED	NAT PROD. 105						
APPROVED	NAT 107	SIZE A	CAGE CODE 3AB01	PART NO. AA37-002		REV. 1.00	SHEET 1/1
FILE 405-0100.DWG		DWG. TYPE CONNECTOR MAP		DWG. NO. AA37\002\405-0			

Section 3.0 Operation

3.1 Introduction

Information in this section consists of the functional and operational procedures for the AA37 series Alerting Systems.

3.2 General

The AA37 series are dual channel Alerting Systems that provide two or three level alerting.

3.3 Configuration

The **AA37 has no normal user operational aspects**. During installation, or if the unit has been exchanged, it may be a requirement to change internal adjustments. This should be done **ONLY BY FULLY QUALIFIED PERSONNEL**.

End of Section 3.0