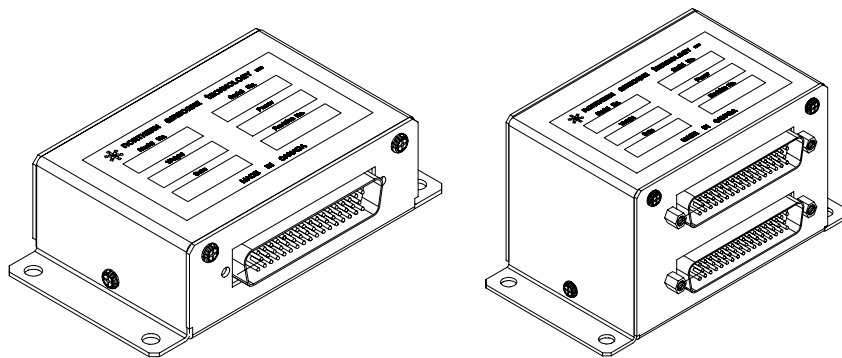




Part of
SM15

**RS12/RS24
Remote Switch**



INSTALLATION AND OPERATION MANUAL

REV 4.00 November 24, 2003

**Northern Airborne Technology Ltd.
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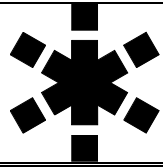
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Sections 1.0 through 3.0 of this Manual are APPROVED by Transport Canada as complying with the requirements of AWM511 for Appliance Type Certificate AP-46.

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	May 12/05	1-2	Performed at factory	

Insert any Amendment Instruction sheets after this page.



nat

**INSTALL_OPS
MANUAL AMENDMENT**

Manual: SM15 (RS12/RS24)

Amendment #: 1

Document # SM15\Install_Ops\809-0001

Amendment Date: May 12, 2005

The purpose of this amendment is to update Section 1.0 with environmental information and descriptions of new products and add updated drawings and documents to and remove obsolete drawings from Section 2.0

Amendment Instructions:

1	Remove Pages	Replace With Pages
	1-3 and 1-4 Rev. 4.00	1-3 through 1-5 Rev. 4.00 Amendment 1
	2-1 through 2-3 Rev. 4.00	2-1 through 2-3 Rev. 4.00 Amendment 1

2	Remove Drawings (Section 2)	Replace or add Drawings (Section 2)
	RS12\020\403-0 Rev. 1.01	RS12\020\403-0 Rev. 1.02
	RS12\020\403-1 Rev. 1.01	RS12\020\403-1 Rev. 1.02
	RS12\030\403-0 Rev. 1.01	RS12\030\403-0 Rev. 1.02
	RS12\030\403-1 Rev. 1.01	RS12\030\403-1 Rev. 1.02
	RS12\350\403-0 Rev. 1.00	
	RS12\350\403-0 Rev. 1.01	
	RS12\020\405-0 Rev. 1.01	RS12\020\405-0 Rev. 1.02
	RS12\020\922-0 Rev. 1.02	RS12\020\922-0 Rev. 1.04
	RS24\020\922-0 Rev. 1.02	RS24\020\922-0 Rev. 1.03
		RS12\521-0 Rev. 1.10
		RS24\521-0 Rev. 1.10

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

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 ii).

Manual Amendment ends after the following amended pages

Table of Contents

Section	Title	Page
1.0	Description	
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Section 1.0 Description

1.1 Introduction

This manual contains information on the RS12/RS24 Remote Switch. Information in this section consists of purpose of equipment, features and specifications and a listing of all models available to date of publication.

1.2 Purpose of Equipment

The RS12/RS24 are compact, high density, bulkhead mounted remote switching units designed to handle the switching requirements of navaid, audio, or other interface applications.

The RS12 remote switch is a unique interface device that allows large numbers of data or audio lines to be transferred with a single logic level control line. The RS24 consists of two completely independent RS12 units packaged in one enclosure.

1.3 Features

The RS12 provides switching for 12 poles of information, organized as three 4PDT relays, each with an individual key line. Each relay can be used independently, or can be picked as one group of three relays (12 contact sets) by applying the required logic level to the respective ALL KEY line.

The RS24 provides switching for 24 poles of information, organized as six 4PDT relays, each with an individual key line. Each relay can be used independently, can be picked as two groups of three relays (12 contact sets), or can be picked as one group of six relays by applying the required logic level to the respective ALL KEY line(s).

These relays can be used for applications from dry circuit to 0.5 A switching, but are limited to a maximum of 30 Vdc. They can be operated from +10 to +33 Vdc without changing the interconnect.

All interconnect and relay contacts are gold plated. Relays are sealed, high vibration rated (50g shock), dry nitrogen filled units.

Circuit boards are constructed of G10-FR (flame retardant) material, with solder masks and reflowed tin plating; they are environmentally protected with conformal coating.

1.4 Specifications

1.4.1 Electrical Specifications

Input Power	+10 to +33 Vdc at 200 mA typical (RS12-030 28Vdc only). Case is internally grounded
Keying	Ground keying for all models except RS12-030 which requires voltage keying at 28 Vdc.
Contacts	HSI levels (500 μ A) or up to .5A at 28 Vdc or 26 Vac
Flag bias	0.5 mA and 1.0 mA, if required
Loads	External 1 k Ω , if required

1.4.2 Physical Specifications

1.4.2.1 RS12

Height	1.25 inches (31.7 mm)
Length	2.40 inches (61.0 mm) excluding connector
Width	4.50 inches (114.3 mm)
Weight	0.35 lb (154 g) excluding connector
Mounting	Bulkhead attachment (4 x 1032/AN3)

1.4.2.2 RS24

Height	2.35 inches (59.7 mm)
Length	2.40 inches (61.0 mm) excluding connector
Width	4.50 inches (114.3 mm)
Weight	0.57 lb (260 g) excluding connector
Mounting	Bulkhead attachment (4 x 1032/AN3)

1.4.3 Environmental Specifications

Temperature Short-term High Temperature: +70° C (30 minutes)
 High Temperature: +55° C
 Low Temperature: -20° C

Altitude

RS12-020 25,000 feet

RS12-030

RS24-020

RS12-350 35,000 feet

RS24-350

RS12-500 50,000 feet

RS24-500

Humidity 95% Non-Condensing

Shock 6g (all axes)

DO-160B Env. Cat:

RS12-020 /A1B1/BA/MNO/XXXXXXABBBBBB

RS12-030

RS24-020

RS12-350 /A1C1/BA/MNO/XXXXXXABBBBBB

RS24-350

RS12-500 /A1D1/BA/MNO/XXXXXXABBBBBB

RS24-500

1.5 Unit Nomenclature

Model	Description / Distinction
RS12-020	General purpose GPS/LORAN/NAV/Audio transfer switch Provides 12 poles of switching, selectable as one group, or as 3 sets of 4 poles 14/28 Vdc operation Gold contacts, sealed 50 g relays Includes flag load resistors and flag bias generator Ground keying Qualified to 25,000 feet

- RS12-030 General purpose GPS/LORAN/NAV/Audio transfer switch
Provides 12 poles of switching, selectable as one group, or as 3 sets of 4 poles
28 Vdc operation
Gold contacts, sealed 50 g relays
Includes flag load resistors and flag bias generator
Voltage keying at 28 Vdc
Qualified to 25,000 feet
- RS12-350 General purpose GPS/LORAN/NAV/Audio transfer switch
Provides 12 poles of switching, selectable as one group, or as 3 sets of 4 poles
14/28 Vdc operation
Gold contacts, sealed 50 g relays
Includes flag load resistors and flag bias generator
Ground keying
Qualified to 35,000 feet
- RS12-500 General purpose GPS/LORAN/NAV/Audio transfer switch
Provides 12 poles of switching, selectable as one group, or as 3 sets of 4 poles
14/28 Vdc operation
Gold contacts, sealed 50 g relays
Includes flag load resistors and flag bias generator
Ground keying
Qualified to 50,000 feet
- RS24-020 General purpose GPS/LORAN/NAV/Audio transfer switch
Provides 24 poles of switching, selectable as one group of 24, two groups of 12, or 6 sets of 4 poles
14/28 Vdc operation
Gold contacts, sealed 50 g relays
Includes flag load resistors and flag bias generator
Ground keying
Qualified to 25,000 feet
- RS24-350 General purpose GPS/LORAN/NAV/Audio transfer switch
Provides 24 poles of switching, selectable as one group of 24, two groups of 12, or 6 sets of 4 poles
14/28 Vdc operation
Gold contacts, sealed 50 g relays
Includes flag load resistors and flag bias generator
Ground keying
Qualified to 35,000 feet

RS24-500

General purpose GPS/LORAN/NAV/Audio transfer switch
Provides 24 poles of switching, selectable as one group of 24, two groups of 12, or 6 sets of 4 poles
14/28 Vdc operation
Gold contacts, sealed 50 g relays
Includes flag load resistors and flag bias generator
Ground keying
Qualified to 50,000 feet

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 and locate the warranty card. 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:

- RS12/RS24 Remote Switch
- Warranty Card
- Release certification

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

Complete the warranty card information and send it to NAT when the installation is complete. If you fail to complete the warranty card, the warranty will be activated on date of shipment from NAT.

2.3 Installation Procedures

2.3.1 Warnings

Do not bundle any lines from this unit with transmitter coax lines. Do not bundle any logic or DC power lines from this unit with 400 Hz synchro wiring, or AC power lines, if audio wiring is run through this switch. If 400 Hz RMI wiring is run through this switch, keep away from all other audio wiring.

2.3.2 Notes

The RS24 consists of two completely independent RS12's. All RS12 interconnect and connector maps can be used to assist in the installation of the RS24.

2.3.3 Cabling and Wiring

All unshielded wire shall be selected in accordance with AC43.13-1B Change 1, Paragraphs 11-76 through 11-78. Wire types should be 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 or equivalent shielded wire with solder sleeves (for shield terminations) to make the most compact and easily terminated 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, except power and ground connections which should be 20 AWG. Ensure that the ground connection is clean and well secured. To prevent system failure or inadequate equipment protection, power to each component of this system should be supplied from a separate breaker or fuse and not bundled to any other source.

2.3.4 External Switches and Lamps

Switches and or annunciators must be selected to suit the application. If all lines are picked at once, a single pushbutton (alternate action) or toggle switch may be used to supply the ALL KEY line. Note that a single switch/lamp assembly can replace the transfer switch and annunciators. This should be a lighted pushbutton switch (SPST/SPDT), with positive action (i.e., push on, push off), and two legends to match the desired NAV functions.

If serving as audio key relays (for boom microphones, etc.), the unit can be triggered by in-line drop cords or other methods that supply an input to the appropriate key line.

If serving as NAV selector, annunciator lights should be connected through one or more relay contacts to ensure indication of actual relay positions.

2.3.5 Post-Installation Checks

2.3.5.1 Voltage/resistance checks

Do not attach the RS12/RS24 until these conditions are met.

With the RS12/RS24 disconnected from its mating connector, check P101 (top connector) pin 17 for +14/28 Vdc relative to ground and pin 34 for continuity to ground (below 0.5 ohms).

If testing an RS24, also check P102 (bottom connector) pin 17 for +14/28 Vdc relative to ground and pin 34 for continuity to ground (below 0.5 ohms).

2.3.5.2 Power On checks

Install the RS12/RS24 and power up the ship's systems. Check that all switching functions transfer correctly with the appropriate relay selection. If the internal flag bias is used for indicator interfacing, ensure that this function works correctly, and only in the selected or transferred position.

2.4 Continued Airworthiness

Maintenance of the RS12/RS24 Remote Switch is 'on condition' only. Periodic maintenance of this product is not required.

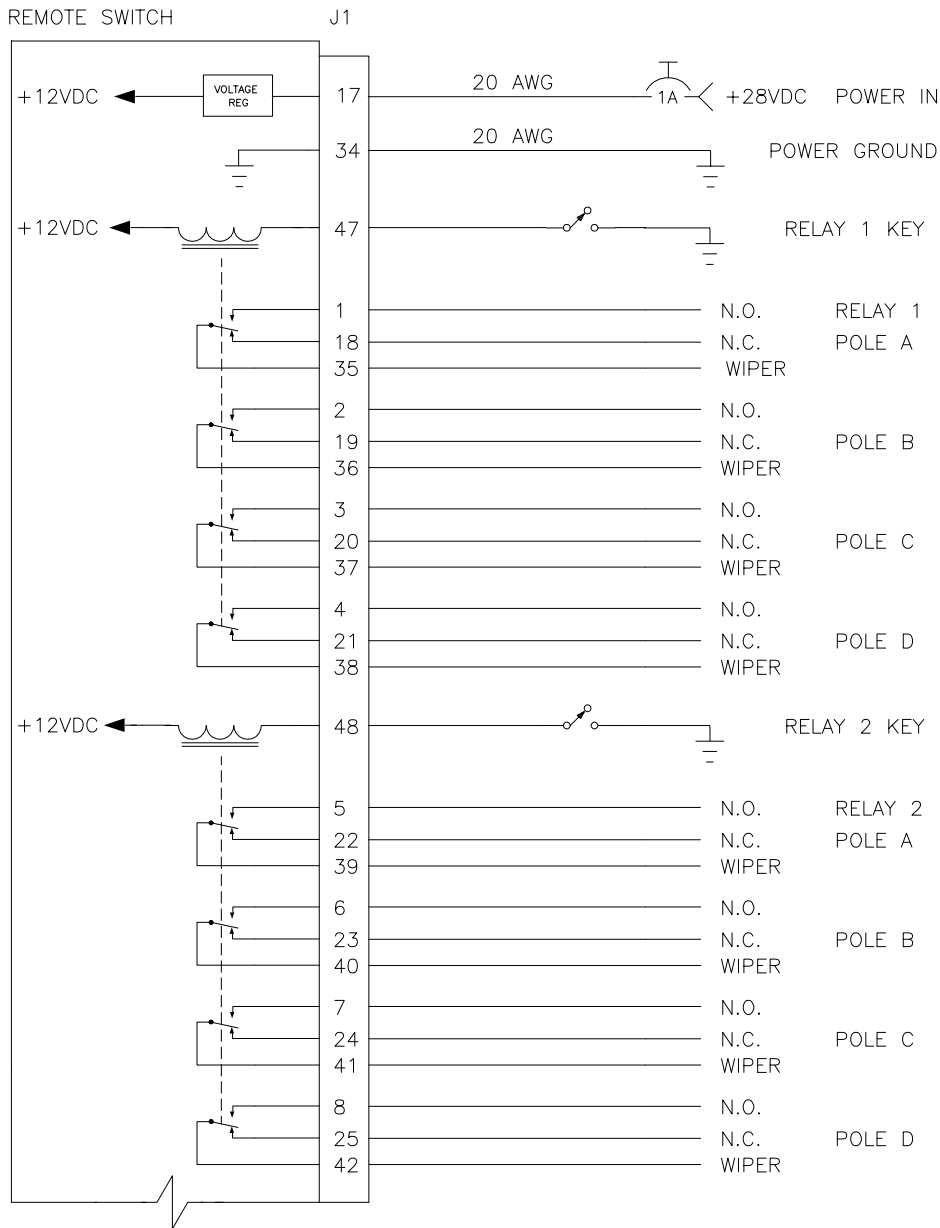
2.5 Installation Drawings

DRAWING	REV.	DESCRIPTION	TYPE
RS12\020\403-0	1.02	Remote Switch	Interconnect (1/2)
RS12\020\403-1	1.02	Remote Switch	Interconnect (2/2)
RS12\030\403-0	1.02	Remote Switch	Interconnect (1/2)
RS12\030\403-1	1.02	Remote Switch	Interconnect (2/2)
RS12\020\405-0	1.02	Remote Switch	Connector Map
RS12\020\922-0	1.04	Remote Switch	Mech. Installation
RS24\020\922-0	1.03	Remote Switch	Mech. Installation
RS12\521-0	1.10	Remote Switch	Environmental Qual. Form
RS24\521-0	1.10	Remote Switch	Environmental Qual. Form

Section 2.0 ends after these Drawings

REVISIONS			
REV	DESCRIPTION	DATE	BY
1.01	FORMAT CHANGES.	AUG 1/95	TM
1.02	DOCCR01248 - ADDED NOTES, FORMAT CHANGES.	MAY 19/05	TAT





RS12-020
REMOTE SWITCH



NOTES:

1. ALL WIRES SHOULD BE 22 AWG UNLESS OTHERWISE SPECIFIED. ALL UNSHIELDED WIRE SHALL BE SELECTED IN ACCORDANCE WITH AC43.13-1B CHANGE 1, PARAGRAPHS 11-76 THROUGH 11-78. WIRE TYPES SHOULD BE TO MIL-W-22759 AS SPECIFIED IN AC43.13-1B CHANGE 1, PARAGRAPHS 11-85, 11-86 AND LISTED IN TABLE 11-11. ALL SHIELDED WIRE/CABLE SHOULD BE IN ACCORDANCE WITH MIL-C-27500.
2. APPLIES TO THE FOLLOWING UNITS:
RS12-020, RS12-350, RS12-500, RS24-020, RS24-350, RS24-500
3. RS24 UNITS CONTAIN TWO RS12 UNITS.

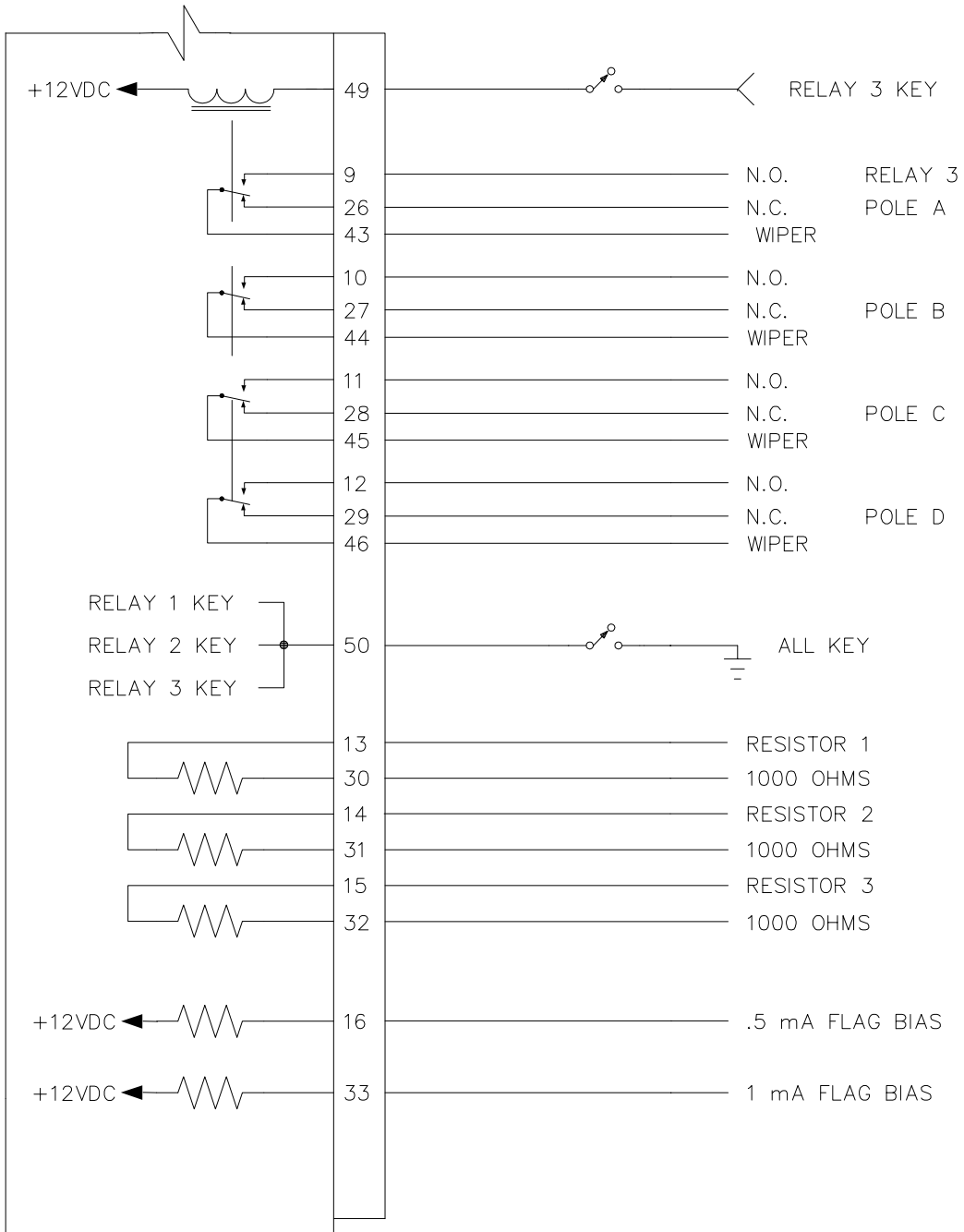
CONFIDENTIAL AND PROPRIETARY TO NAT LTD.

DESIGNED	-	 NAT NORTHERN AIRBORNE TECHNOLOGY LTD.				
DRAWN	MS/TM					
DATE	APR 6/91	TITLE				
CHECKED	 	REMOTE SWITCH				
APPROVED		SIZE	CAGE CODE	PART NO.	REV.	SHEET
FILE	403-0.DWG	A	3AB01	RS12-020	1.02	1/2
DWG. TYPE		INTERCONNECT		DWG. NO. RS12\020\403-0		





REVISIONS			
REV	DESCRIPTION	DATE	BY
1.01	FORMAT CHANGES.	AUG 1/95	TM
1.02	DOCCR01248 - FORMAT CHANGES.	MAY 19/05	TAT

RS12-020
REMOTE SWITCH

P/O J1

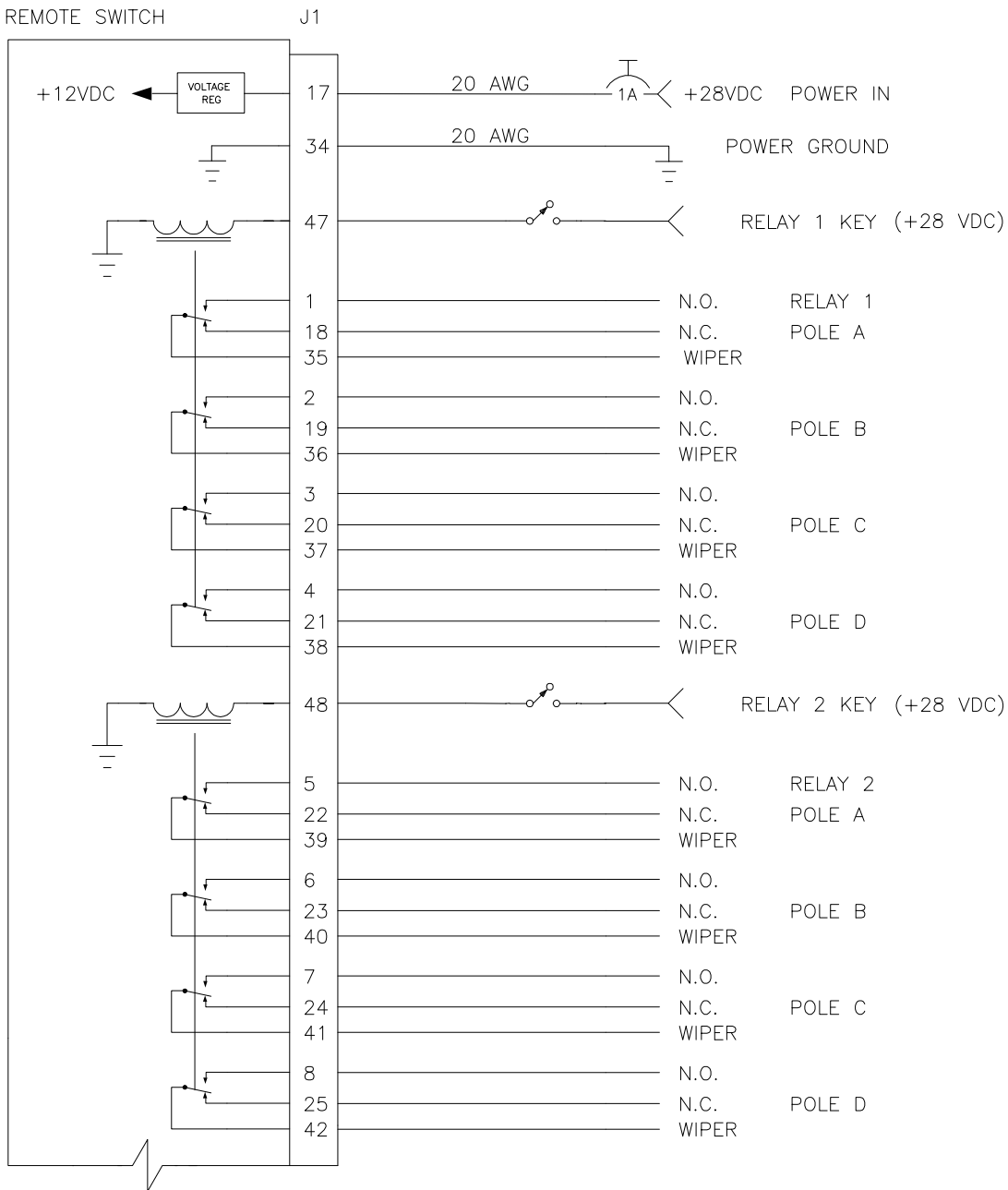


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DESIGNED	-	 NAT NORTHERN AIRBORNE TECHNOLOGY LTD.				
DRAWN	MS/TM					
DATE	APR 6/91	TITLE				
CHECKED	 	REMOTE SWITCH				
APPROVED		SIZE	CAGE CODE	PART NO.	REV.	SHEET
FILE	403-1.DWG	A	3AB01	RS12-020	1.02	2/2
		DWG. TYPE	INTERCONNECT	DWG. NO.	RS12\020\403-1	

REVISIONS			
REV	DESCRIPTION	DATE	BY
1.01	FORMAT CHANGES.	AUG 1/95	TM
1.02	DOCCR01248 - FORMAT CHANGES.	MAY 19/05	TAT

RS12-030
REMOTE SWITCH



NOTES:

- ALL WIRES SHOULD BE 22 AWG UNLESS OTHERWISE SPECIFIED. ALL UNSHIELDED WIRE SHALL BE SELECTED IN ACCORDANCE WITH AC43.13-1B CHANGE 1, PARAGRAPHS 11-76 THROUGH 11-78. WIRE TYPES SHOULD BE TO MIL-W-22759 AS SPECIFIED IN AC43.13-1B CHANGE 1, PARAGRAPHS 11-85, 11-86 AND LISTED IN TABLE 11-11. ALL SHIELDED WIRE/CABLE SHOULD BE IN ACCORDANCE WITH MIL-C-27500.

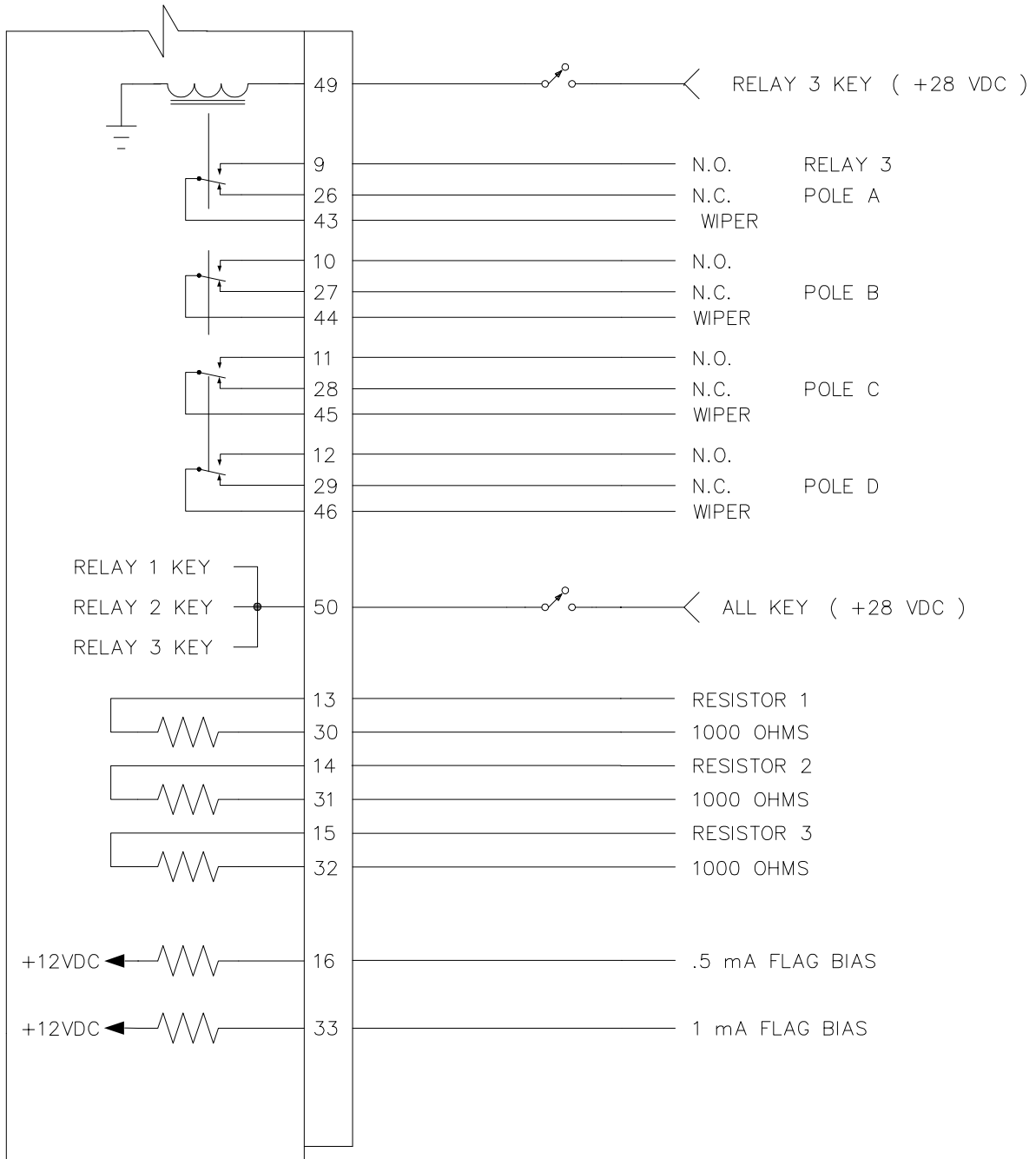
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DESIGNED	-	NAT NORTHERN AIRBORNE TECHNOLOGY LTD.				
DRAWN	MS/TM					
DATE	JUN 14/91	TITLE		REMOTE SWITCH		
CHECKED						
APPROVED		SIZE	CAGE CODE	PART NO.	REV.	SHEET
FILE	403-0.DWG	A	3AB01	RS12-030	1.02	1/2
DWG. TYPE		INTERCONNECT		DWG. NO. RS12\030\403-0		





REVISIONS			
REV	DESCRIPTION	DATE	BY
1.01	FORMAT CHANGES.	AUG 1/95	TM
1.02	DOCCR01248 - FORMAT CHANGES.	MAY 19/05	TAT

RS12-030
REMOTE SWITCH

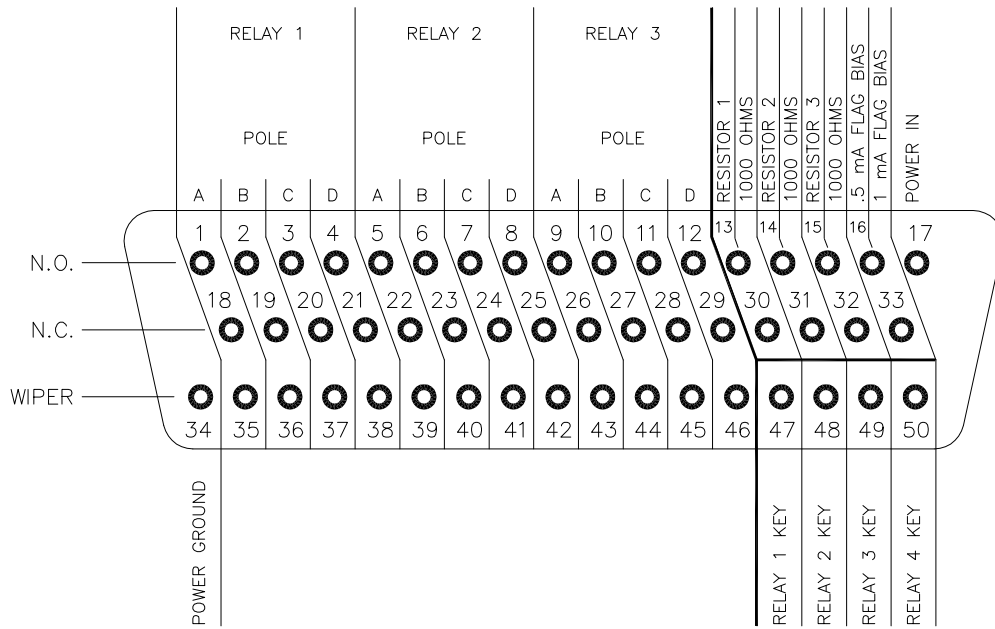
P/O J1



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DESIGNED	-	 NAT NORTHERN AIRBORNE TECHNOLOGY LTD.				
DRAWN	MS/TM					
DATE	JUN 14/91	TITLE				
CHECKED	 	REMOTE SWITCH				
APPROVED		SIZE	CAGE CODE	PART NO.	REV.	SHEET
FILE	403-1.DWG	A	3AB01	RS12-030	1.02	2/2
		DWG. TYPE	INTERCONNECT	DWG. NO.	RS12\030\403-1	





REVISIONS			
REV	DESCRIPTION	DATE	BY
1.01	FORMAT CHANGES.	AUG 1/95	TM
1.02	DOCCRO1248 - CHANGED RELAY KEYING NOTE, FORMAT CHANGES.	MAY 19/05	TAT



NOTES:

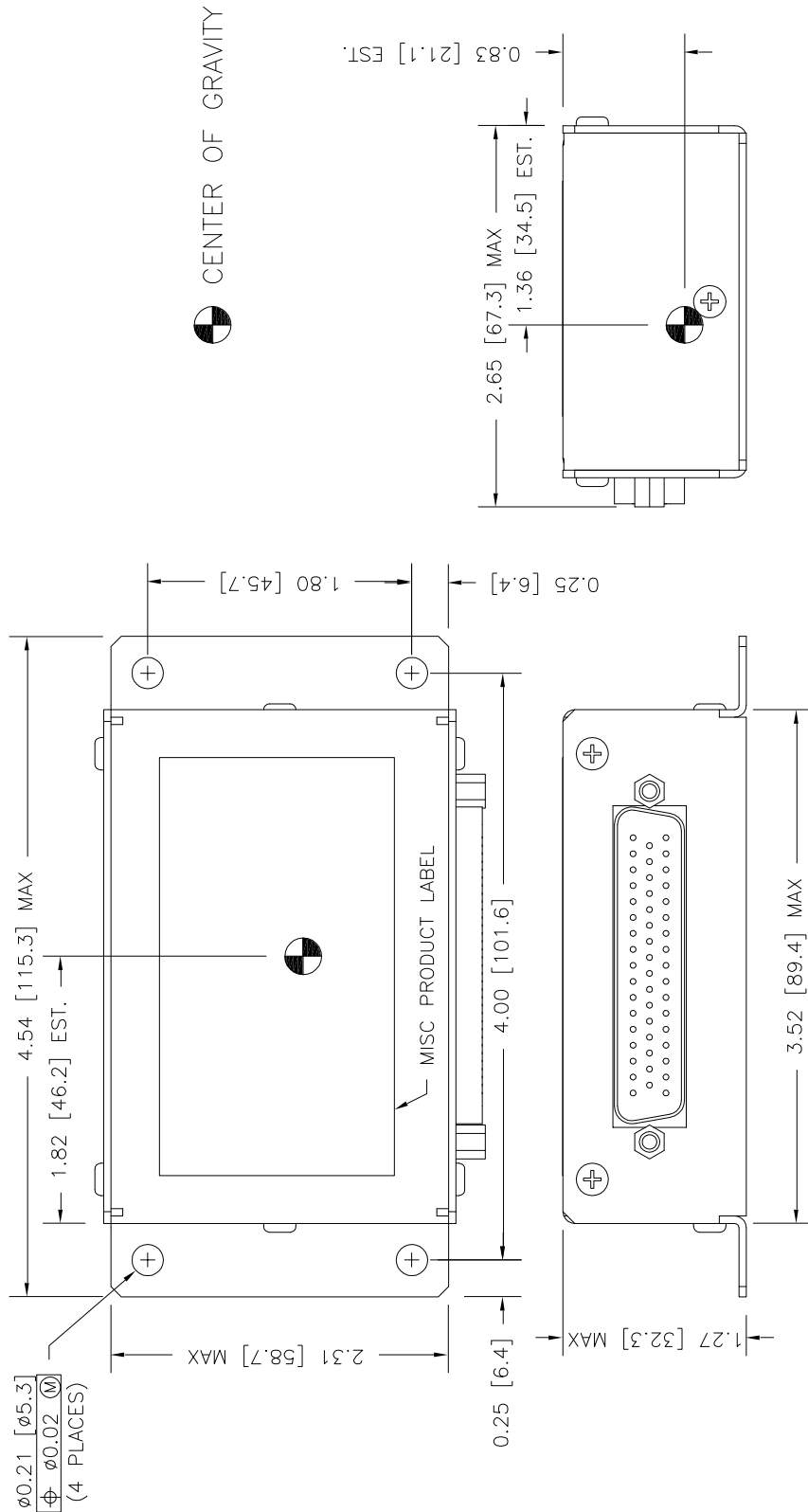
- FLAG BIAS - PIN 16: 0.5 mA MAX
- PIN 33: 1.0 mA MAX
- RELAY KEYING - GROUND/LOGIC LO PERTAINS TO RS12-020, RS12-350, RS12-500, RS24-020, RS24-350 AND RS24-500 UNITS
- VOLTAGE HI (28V) PERTAINS TO RS12-030 ONLY.
- VIEW IS FROM REAR SIDE OF AIRFRAME CONNECTOR

CONFIDENTIAL AND PROPRIETARY TO NAT LTD.

DESIGNED	-	 NAT NORTHERN AIRBORNE TECHNOLOGY LTD.				
DRAWN	MD/TM					
DATE	APR 15/91	TITLE				
CHECKED	 	REMOTE SWITCH				
APPROVED		SIZE	CAGE CODE	PART NO.	REV.	SHEET
FILE	405-0.DWG	A	3AB01	RS12-020	1.02	1/1
		DWG. TYPE	CONNECTOR MAP	DWG. NO.	RS12\020\405-0	

REVISIONS

REV	DESCRIPTION	DATE	BY
1.01	ECR #954 - 1.80 WAS 1.91, WEIGHT ADDED.	SEP 2/97	TGM
1.02	ECR #1076 - 3.50 WAS 3.48, 154g WAS 290g	JAN 7/98	JJJ
1.03	ECR #1190 - LABEL WAS 43-30-001, FORMAT CHANGES.	JAN 25/00	TAT
1.04	DOCCR01248 - ADDED NOTE, FORMAT CHANGES.	MAY 19/05	TAT



- NOTES:
1. DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH ASME Y14.5M-1994
 2. APPLICABLE TO THE FOLLOWING UNITS:
RS12-020
RS12-030
RS12-350
RS12-500

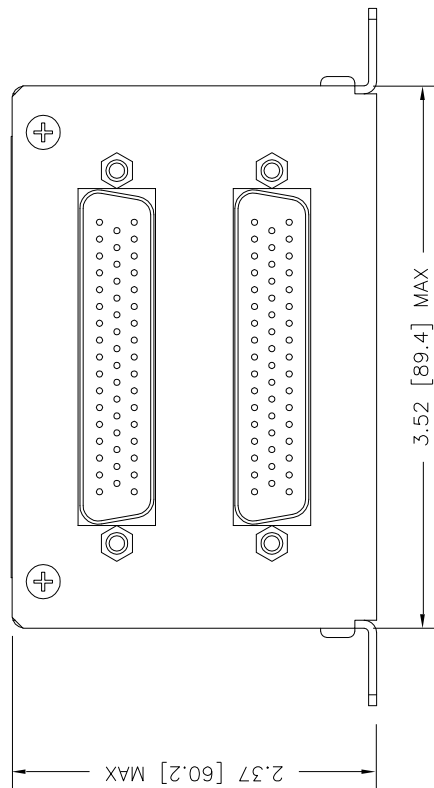
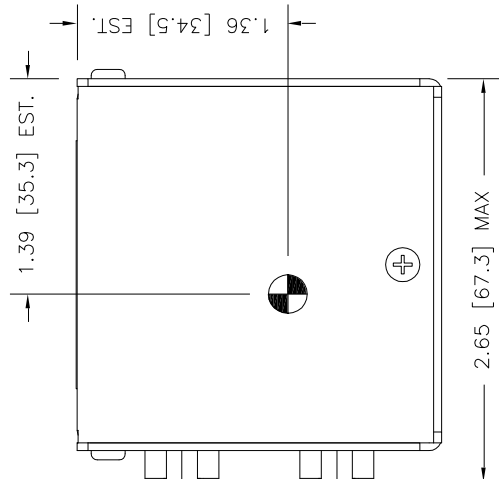
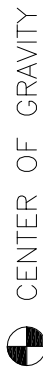
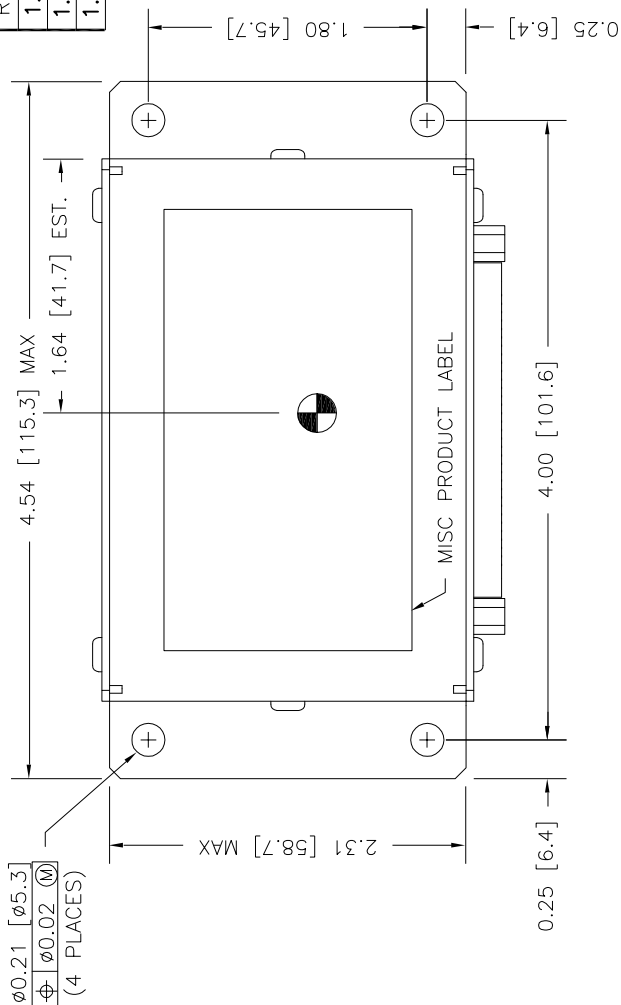
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DESIGNED		TGM/PL	
DRAWN			
DATE		AUG 1/95	
CHECKED	NAT 114		NAT 255
APPROVED	NAT 131		
FILE	922-0.DWG	DWG. TYPE	MECH. INSTALLATION
DIMENSIONS ARE INCHES [mm]		SIZE	CAGE CODE
THIRD ANGLE PROJECTION		A	3AB01
MASS: 0.37 lbs. (0.17 Kg) MAX		PART NO.	RS12-020
MATERIAL:		REV.	1.04
FINISH:		SHEET	1/1
TITLE		REMOTE SWITCH	
DWG. NO.		RS12\020\922-0	

nat NORTHERN AIRBORNE TECHNOLOGY LTD.

REVISIONS

REV	DESCRIPTION	DATE	BY
1.01	ECR # 954 - 1.80 WAS 1.91, WEIGHT ADDED.	AUG 28/97	TCM
1.02	ECR #1076 - 260g WAS 450g	JAN 7/98	JJJ
1.03	DOCCR01248 - ADDED NOTE, FORMAT CHANGES.	MAY 16/05	TAT



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<p>NOTES:</p> <p>1. DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH ASME Y14.5M-1994</p> <p>2. APPLICABLE TO THE FOLLOWING UNITS: RS24-020 RS24-350 RS24-500</p>		<p>DESIGNED DRAWN</p>		<p>TGM/PL</p>		<p>CONFIDENTIAL AND PROPRIETARY TO NAT LTD.</p>	
<p>THIRD ANGLE PROJECTION</p>		<p>DATE</p>		<p>AUG 1/95</p>		<p>nat NORTHERN AIRBORNE TECHNOLOGY LTD.</p>	
<p>MASS: 0.60 lbs. (0.27 Kg) MAX</p>		<p>CHECKED</p>		<p>NAT 114</p>		<p>TITLE REMOTE SWITCH</p>	
<p>MATERIAL:</p>		<p>APPROVED</p>		<p>NAT 131</p>		<p>SIZE A</p>	
<p>FINISH:</p>		<p>FILE</p>		<p>922-0.DWG</p>		<p>DWG. NO. RS24-020</p>	
		<p>MECH. INSTALLATION</p>		<p>MECH. TYPE</p>		<p>REV. SHEET 1.03 1/1</p>	
		<p>DWG. NO.</p>		<p>RS24-020</p>		<p>DWG. NO. RS24\020\922-0</p>	



ENVIRONMENTAL QUALIFICATION FORM

Description: Remote Switch Document #: RS12\521-0

NAT Part #: RS12-XXX TSO #: N/A

Manufacturer's Specification and/or Other Applicable Specification: _____

TC: SCA 99-05. RTCA: DO-160B, DO-160D

Manufacturer: Northern Airborne Technology Ltd.

Address: #14 - 1925 Kirschner Rd., Kelowna, BC, Canada. V1Y 4N7

Prepared By:	NAT 259	Checked By:	NAT 284	DE 01	Approved By:	NAT 125
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Conditions	Section	Description of Conducted Tests
Temperature and Altitude	DO-160B: 4.0	RS12-020, -030: Equipment tested to Categories A1, B1
Low Temperature	4.5.1	RS12-350: Equipment tested to Categories A1, C1
High Temperature	4.5.2 & 4.5.3	
Altitude	4.6.1	
Decompression	4.6.2	RS12-500: Equipment tested to Categories A1, D1
Overpressure	4.6.3	
Temperature Variation	DO-160B: 5.0	Equipment tested to Category B
Humidity	DO-160B: 6.0	Equipment tested to Category A
Shock	DO-160D: 7.0	Equipment tested to Category B
Operational	7.2	
Crash Safety	7.3	
Vibration	DO-160D: 8.0	Equipment tested to Categories [SBM] [UF]
Explosion	DO-160B: 9.0	Equipment identified as Category X no test required
Waterproofness	DO-160B: 10.0	Equipment identified as Category X no test required



Conditions	Section	Description of Conducted Tests
Fluids Susceptibility	DO-160B: 11.0	Equipment identified as Category X no test required
Sand and Dust	DO-160B: 12.0	Equipment identified as Category X no test required
Fungus	DO-160B: 13.0	Equipment identified as Category X no test required
Salt Spray	DO-160B: 14.0	Equipment identified as Category X no test required
Magnetic Effect	DO-160B: 15.0	Equipment is Category A
Power input	DO-160B: 16.0	Equipment tested to Category B
Voltage Spike	DO-160B: 17.0	Equipment tested to Category B
Audio Frequency Susceptibility	DO-160B: 18.0	Equipment tested to Category B
Induced Signal Susceptibility	DO-160B: 19.0	Equipment tested to Category B
Radio Frequency Susceptibility	DO-160B: 20.0	Equipment tested to Category B
Radio Frequency Emission	DO-160B: 21.0	Equipment tested to Category B
Lightning Induced Transient Susceptibility	DO-160B: 22.0	Equipment identified as Category X no test required

REMARKS

- Tests were conducted at NAT facilities in Kelowna, B.C. Canada
- DO-160B categories declared by similarity to RS08 Remote Switch

End of Environmental Qualification Form



ENVIRONMENTAL QUALIFICATION FORM

Description: Remote Switch Document #: RS24\521-0

NAT Part #: RS24-XXX TSO #: N/A

Manufacturer's Specification and/or Other Applicable Specification: _____

TC: SCA 99-05. RTCA: DO-160B, DO-160D

Manufacturer: Northern Airborne Technology Ltd.

Address: #14 - 1925 Kirschner Rd., Kelowna, BC, Canada. V1Y 4N7

Prepared By:	NAT 259	Checked By:	NAT 284	DE 01	Approved By:	NAT 125
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Conditions	Section	Description of Conducted Tests
Temperature and Altitude	DO-160B: 4.0	RS24-020: Equipment tested to Categories A1, B1
Low Temperature	4.5.1	RS24-350: Equipment tested to Categories A1, C1
High Temperature	4.5.2 & 4.5.3	
Altitude	4.6.1	RS24-500: Equipment tested to Categories A1, D1
Decompression	4.6.2	
Overpressure	4.6.3	
Temperature Variation	DO-160B: 5.0	Equipment tested to Category B
Humidity	DO-160B: 6.0	Equipment tested to Category A
Shock	DO-160D: 7.0	Equipment tested to Category B
Operational	7.2	
Crash Safety	7.3	
Vibration	DO-160D 8.0	Equipment tested to Categories [SBM] [UF]
Explosion	DO-160B: 9.0	Equipment identified as Category X no test required
Waterproofness	DO-160B: 10.0	Equipment identified as Category X no test required

Conditions	Section	Description of Conducted Tests
Fluids Susceptibility	DO-160B: 11.0	Equipment identified as Category X no test required
Sand and Dust	DO-160B: 12.0	Equipment identified as Category X no test required
Fungus	DO-160B: 13.0	Equipment identified as Category X no test required
Salt Spray	DO-160B: 14.0	Equipment identified as Category X no test required
Magnetic Effect	DO-160B: 15.0	Equipment is Category A
Power input	DO-160B: 16.0	Equipment tested to Category B
Voltage Spike	DO-160B: 17.0	Equipment tested to Category B
Audio Frequency Susceptibility	DO-160B: 18.0	Equipment tested to Category B
Induced Signal Susceptibility	DO-160B: 19.0	Equipment tested to Category B
Radio Frequency Susceptibility	DO-160B: 20.0	Equipment tested to Category B
Radio Frequency Emission	DO-160B: 21.0	Equipment tested to Category B
Lightning Induced Transient Susceptibility	DO-160B: 22.0	Equipment identified as Category X no test required

REMARKS

- Tests were conducted at NAT facilities in Kelowna, B.C. Canada
- DO-160B categories declared by similarity to RS08 Remote Switch

End of Environmental Qualification Form

Section 3.0 Operation

3.1 Introduction

Information in this section consists of the functional and operational procedures for the RS12/RS24 Remote Switch.

3.2 General

The RS12/RS24 provides remote switching of navigation or audio signals to allow system expansion or interconnection. The RS12/RS24 requires no operator interaction. Once installed, it operates independently to provide the required switching functions.

If used for NAV switching (such as two sources to a common indicator), it must be clearly marked and placarded in the aircraft. External annunciation of NAV source must comply with section 2.3.4 of this manual.

If used for GPS/LORAN/VLF switching, the unit may have to be wired to return to the VOR/ILS mode when the navigation receiver is channeled to an ILS frequency. Check local aviation regulations regarding this requirement.

NOTE: ILS reversion mode is not applicable in Canada for NAV/GPS installations.

3.3 Limitations

The RS12/RS24 series remote switch imposes no limitations on the original airframe.

3.4 Emergency Procedures

The RS12/RS24 series remote switches do not affect the emergency procedures of the aircraft. Flight personnel should be made aware of the function of the RS12/RS24, if it is used to switch navigation signals.

3.5 Performance

The RS12/RS24 series remote switches do not affect the performance of the aircraft.

End of section 3.0

